744

LAST ONE!

Customer gets a copy

Return this to the floor

LAST ONE!

3M / DYNATEL

2285X Q OP-MAIN

MP-101590

MP MASTER
MA33558

Matsushita

AUDIO ANALYZER VP-7722A
SERVICE MANUAL

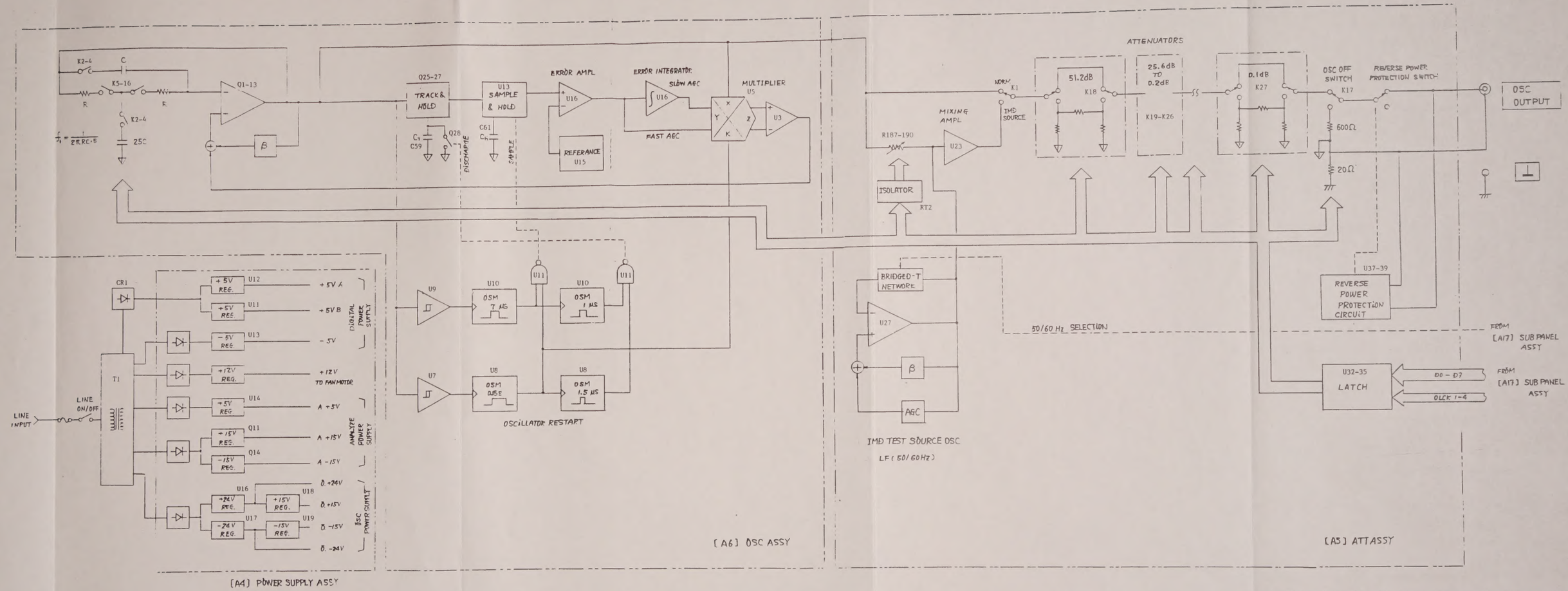


Figure 3-7 Schmatic block diagram of analog assembly

Digitized by the Internet Archive
in 2025

https://archive.org/details/manualsplus_05373

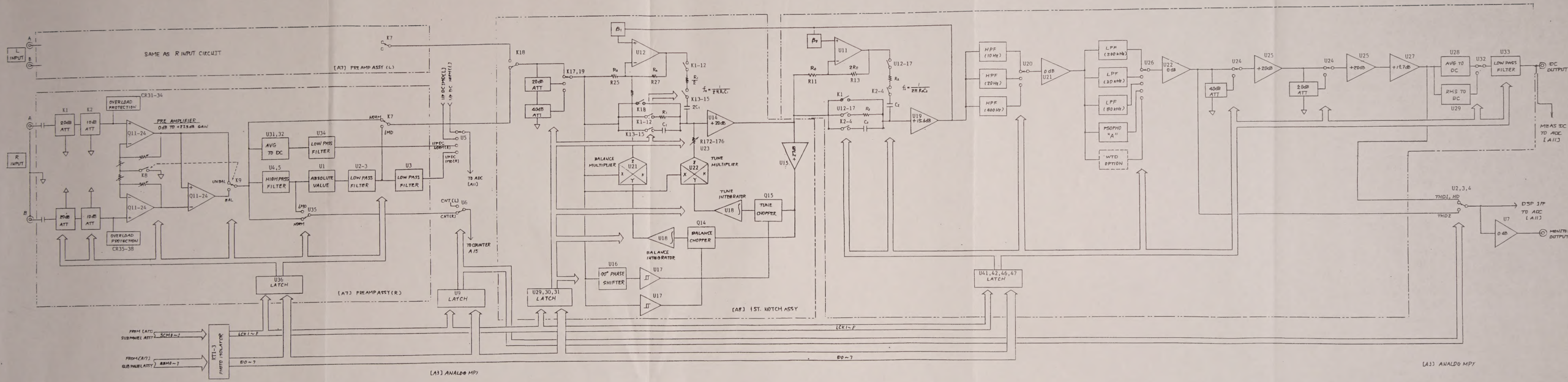
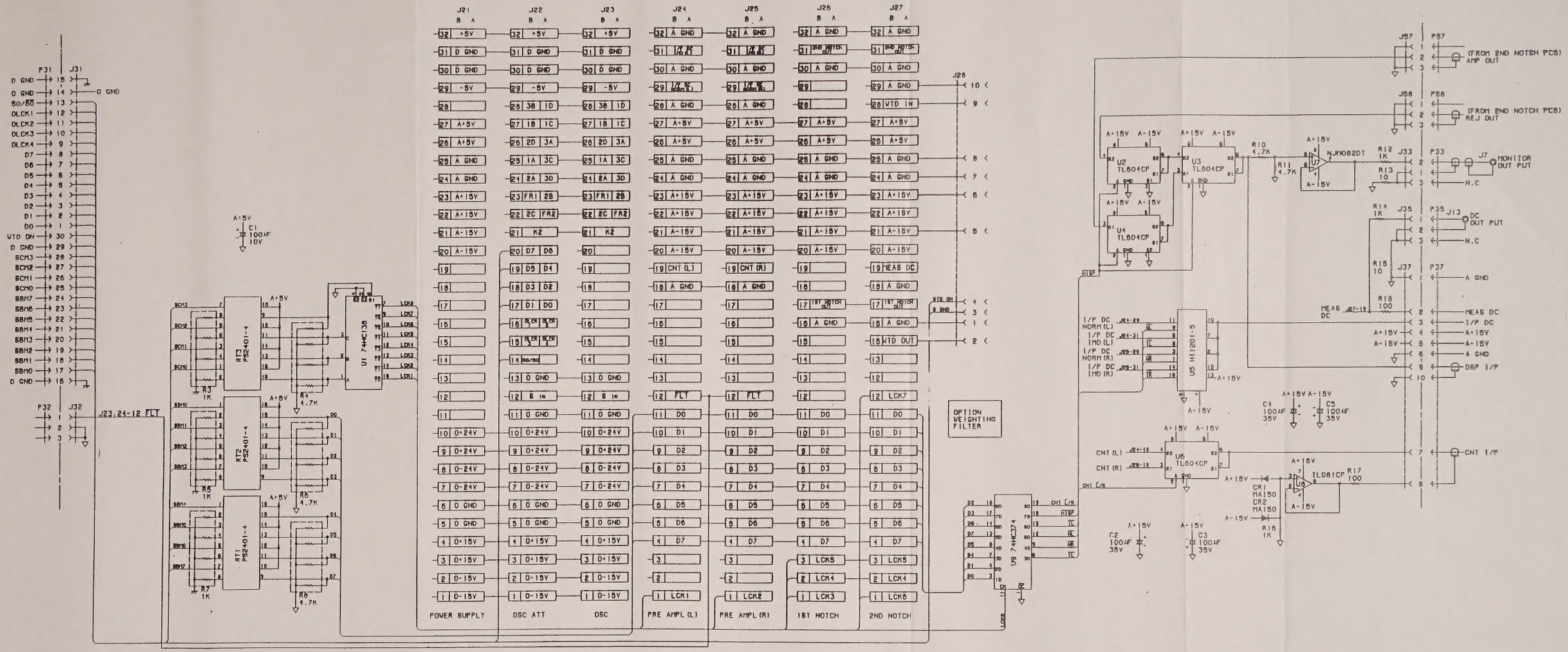
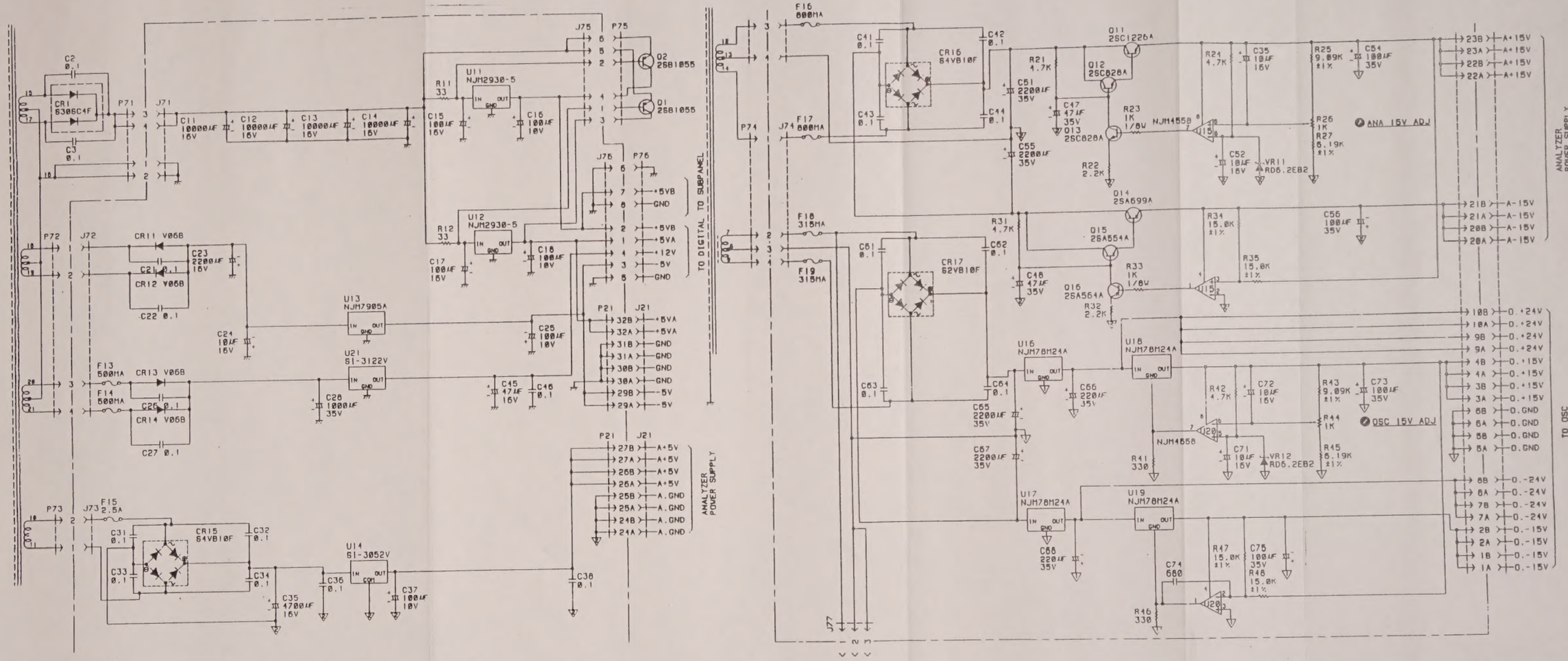
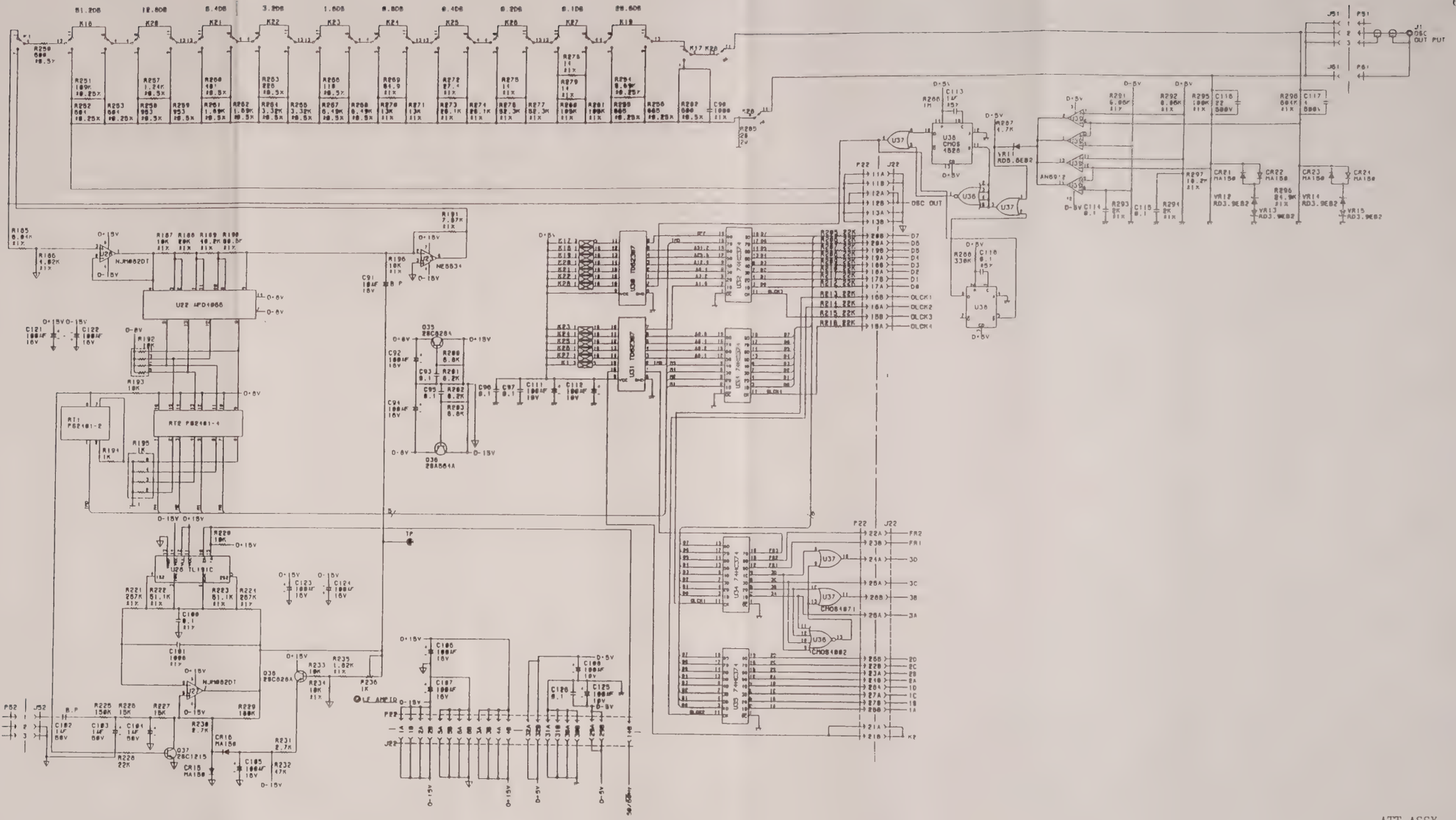
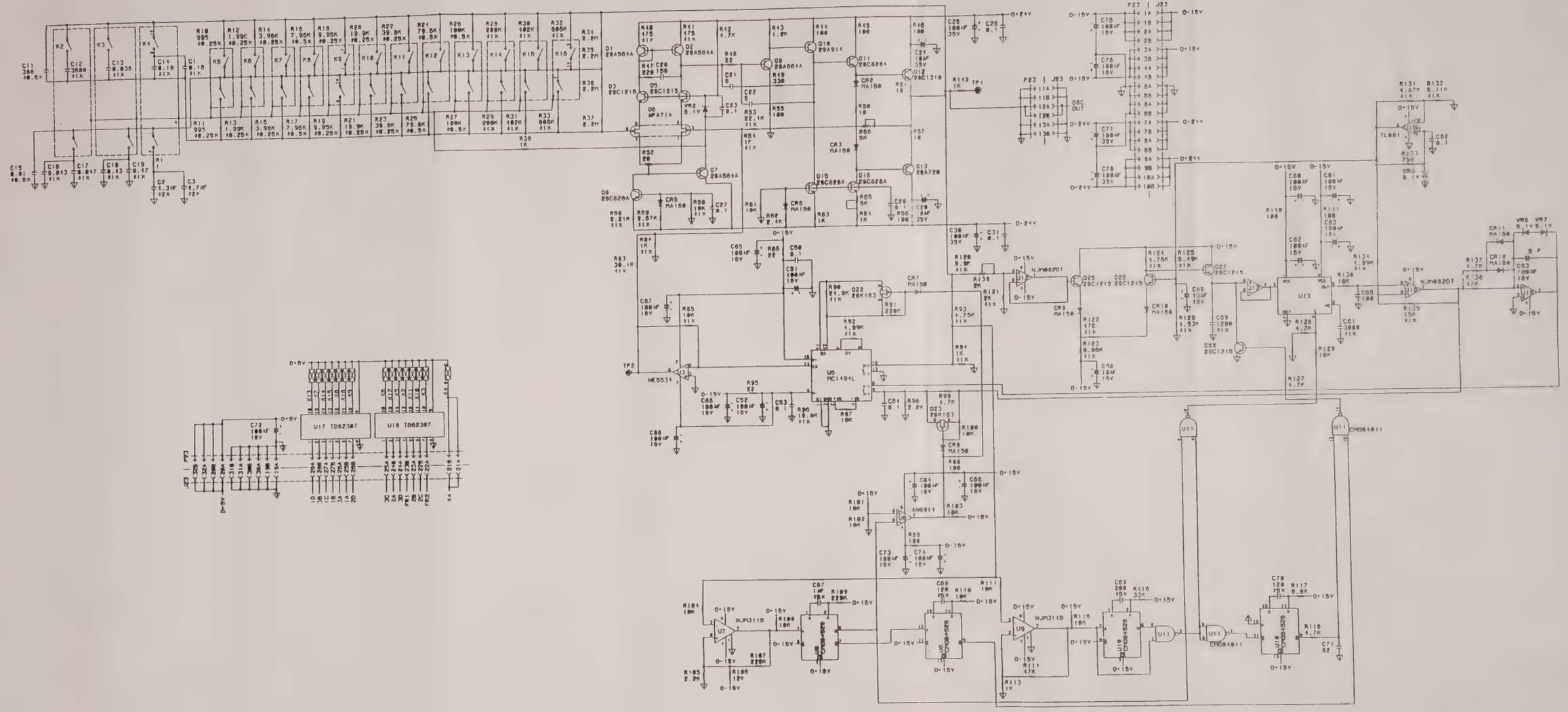


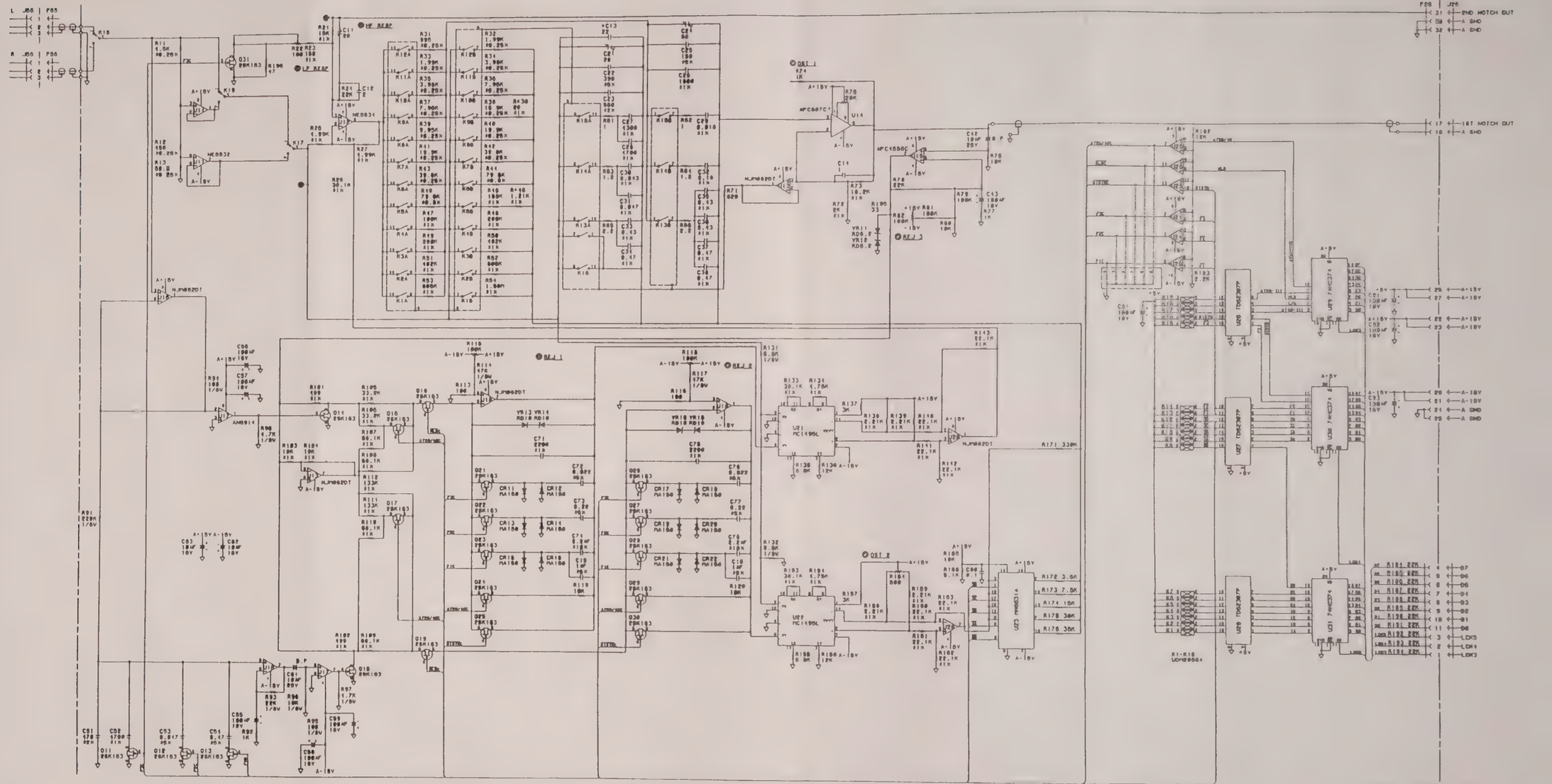
Figure 3-8 Schmatic block diagram of analog assembly


P31
J31
D GND
D GND
50/60
OLCK1
OLCK2
OLCK3
OLCK4
D7
D6
D5
D4
D3
D2
D1
D0
WTD DN
D GND
SCM3
SCM2
SCM1
SCM0
SBM7
SBM6
SBM5
SBM4
SBM3
SBM2
SBM1
SBM0
D GND
P32
J32
J23,24-12 FLT
A+5V
C1
100uF
10V
R3
1K
R4
4.7K
R5
1K
R6
4.7K
R7
1K
R8
4.7K
RT3
PS2401-4
RT2
PS2401-4
RT1
PS2401-4
U1 74HC138
J21
J22
J23
J24
J25
J26
J27
J28
POWER SUPPLY
OSC ATT
OSC
PRE AMPL (L)
PRE AMPL (R)
1ST NOTCH
2ND NOTCH
OPTION
WEIGHTING
FILTER
U9 74HC374
U2
TL604CP
U3
TL604CP
U4
TL604CP
U5 H11201-5
U6
TL604CP
U7
NJM082DT
U8
TL081CP
R10
4.7K
R11
4.7K
R12
1K
R13
10
R14
1K
R15
10
R16
100
R17
100
R18
1K
C2
100uF
35V
C3
100uF
35V
C4
100uF
35V
C5
100uF
35V
CR1
MA150
CR2
MA150
J33
J35
J37
J13
J7
P33
P35
P37
P57
P58
(FROM 2ND NOTCH PCB)
AMP OUT
(FROM 2ND NOTCH PCB)
REJ OUT
MONITOR
OUT PUT
DC
OUT PUT
N.C
N.C
A GND
MEAS DC
I/P DC
A+15V
A-15V
A-15V
A GND
DSP I/P
CNT I/P
MEAS
DC
I/P DC
NORM (L)
I/P DC
IMD (L)
I/P DC
NORM (R)
I/P DC
IMD (R)
CNT (L)
CNT (R)

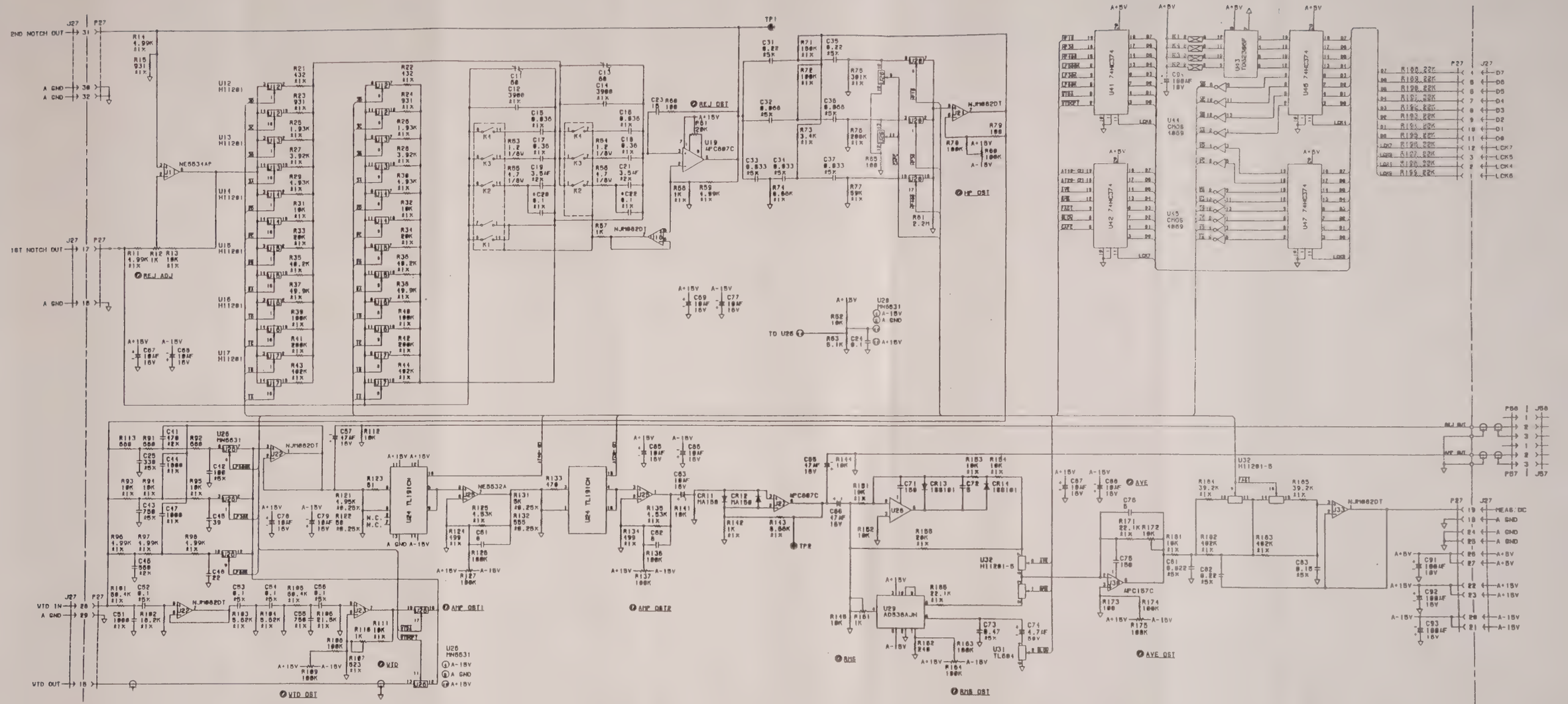

TO DIGITAL TO SUBPANEL
ANALYZER POWER SUPPLY
TO OSC
ANA 15V ADJ
OSC 15V ADJ
CR1 6306C4F
CR15 64VB10F
CR16 64VB10F
CR17 62VB10F
U11 NJM2930-5
U12 NJM2930-5
U13 NJM7905A
U14 61-3052V
U21 61-3122V
U16 NJM78M24A
U17 NJM78M24A
U18 NJM78M24A
U19 NJM78M24A
NJM4558
Q1 2SB1055
Q2 2SB1055
Q11 2SC1226A
Q12 2SC828A
Q13 2SC828A
Q14 2SA699A
Q15 2SA554A
Q16 2SA564A
+5VB
GND
+5VB
+5VA
+12V
-5V
GND
+5VA
+5VA
GND
GND
GND
GND
-5V
-5V
A+5V
A+5V
A+5V
A+5V
A.GND
A.GND
A.GND
A.GND
A+15V
A+15V
A+15V
A+15V
A-15V
A-15V
A-15V
A-15V
0.+24V
0.+24V
0.+24V
0.+24V
0.+15V
0.+15V
0.+15V
0.+15V
0.GND
0.GND
0.GND
0.GND
0.-24V
0.-24V
0.-24V
0.-24V
0.-15V
0.-15V
0.-15V
0.-15V

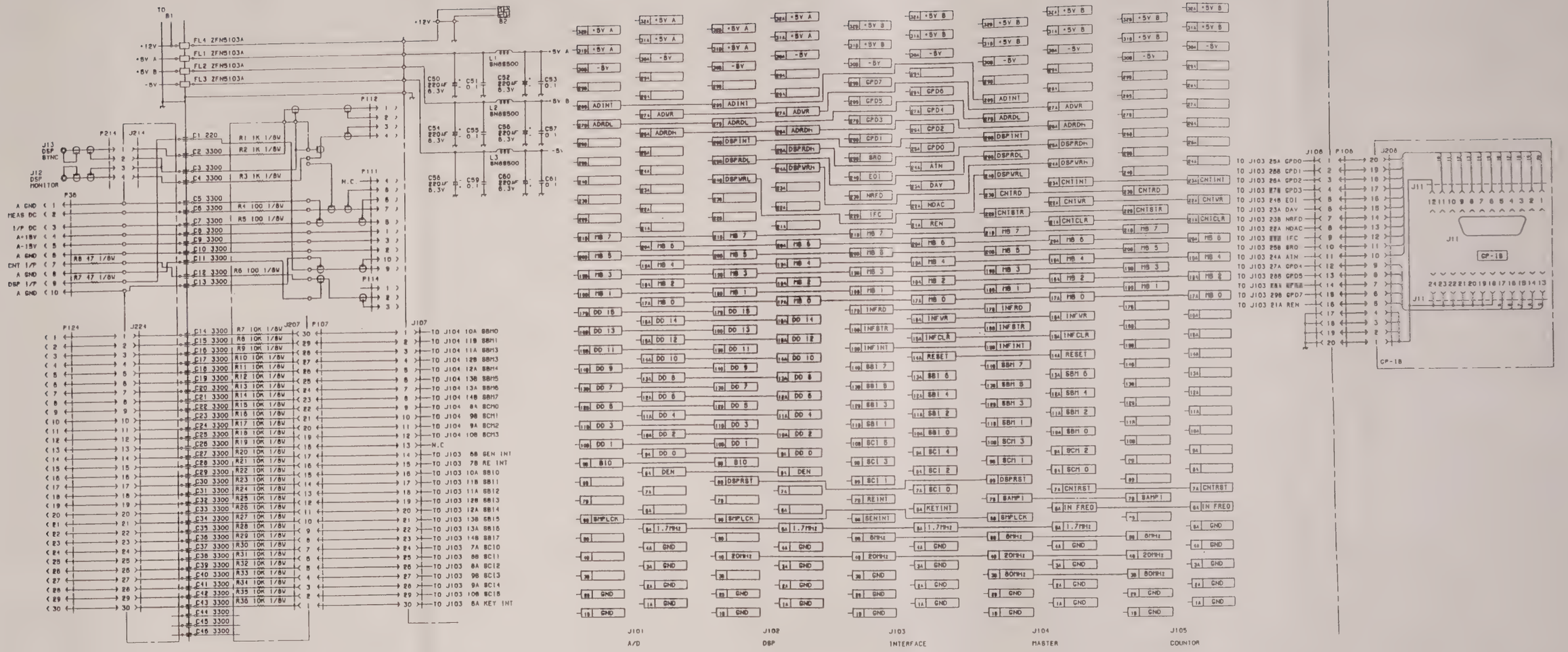


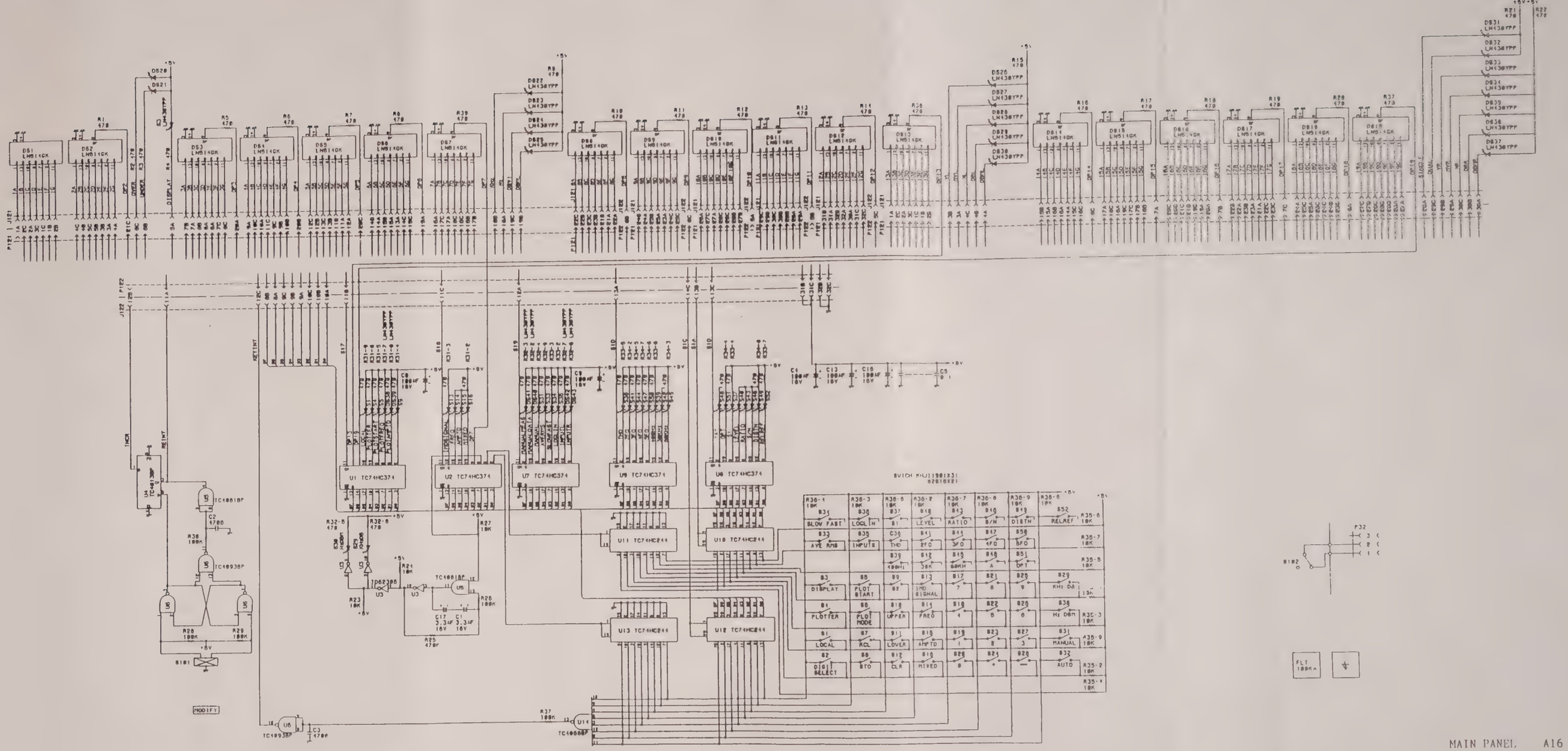


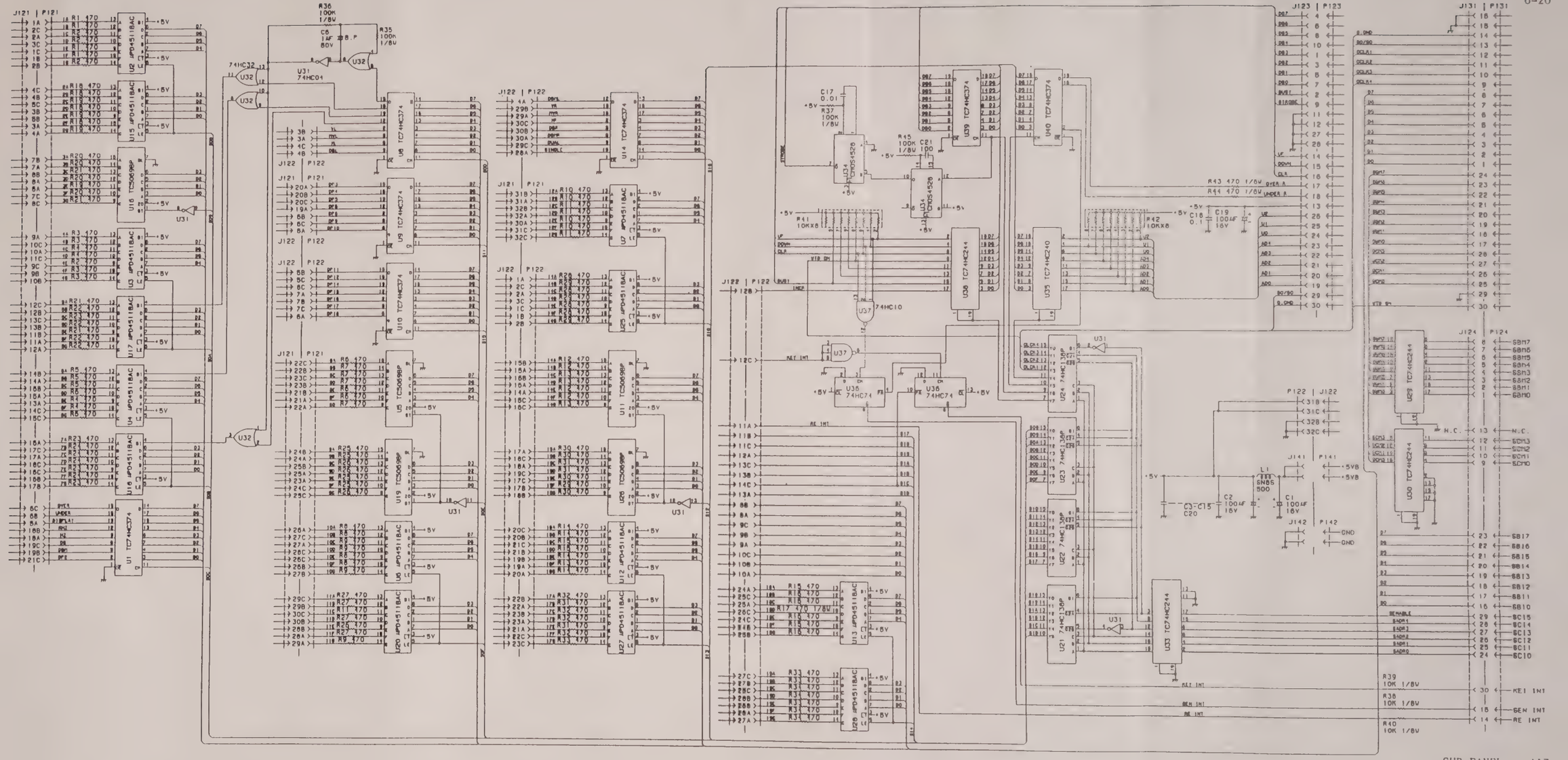


FARST. NOTCH ASSY A8


2ND NOTCH OUT
1ST NOTCH OUT
A GND
VTD IN
VTD OUT
REJ ADJ
REJ OUT
HP OUT
AVE OUT
AVE
VID
VID OUT
AMP OUT1
AMP OUT2
BAS
BAS OUT
MEAS DC
A+15V
A-15V
A+5V


J101 A/D
J102 DSP
J103 INTERFACE
J104 MASTER
J105 COUNTOR
J106
J108
J11
GP-IB
J13 DSP SYNC
J12 DSP MONITOR
P36
P214
J214
P112
P111
P114
P124
J224
J207
P107
J107
FL4 ZFN5103A
FL1 ZFN5103A
FL2 ZFN5103A
FL3 ZFN5103A
L1 BN68500
L2 BN68500
L3 BN68500
+12V
+5V A
+5V B
-5V
-8V
ADINT
ADVR
ADRDL
ADRDH
DBPINT
DBPRDL
DBPWRL
DBPRDH
DBPWRH
CNTIN1
CNTRD
CNTWR
CNTBTR
CNTCLR
INFRD
INFWR
INFBTR
INFCLR
INFINT
RESET
GPD7
GPD6
GPD5
GPD4
GPD3
GPD2
GPD1
GPD0
BRO
EOI
NRFD
NDAC
IFC
ATN
DAV
REN
REINT
SENINT
KEYINT
DBPRST
BAMP1
CNTRST
IN FREQ
SMPLCK
1.7MHz
20MHz
80MHz
GND
DEN
B10
DD 0
DD 1
DD 2
DD 3
DD 4
DD 5
DD 6
DD 7
DD 8
DD 9
DD 10
DD 11
DD 12
DD 13
DD 14
DD 15
MB 0
MB 1
MB 2
MB 3
MB 4
MB 5
MB 6
MB 7
SBI 0
SBI 1
SBI 2
SBI 3
SBI 4
SBI 5
SBI 6
SBI 7
SBM 0
SBM 1
SBM 2
SBM 3
SBM 4
SBM 5
SBM 6
SBM 7
BCI 0
BCI 1
BCI 2
BCI 3
BCI 4
BCI 5
BCI 6
BCI 7
BCM 0
BCM 1
BCM 2
BCM 3
M.C.
A GND
MEAS DC
I/P DC
A+15V
A-15V
CNT I/P
DSP I/P
R1 1K 1/8W
R2 1K 1/8W
R3 1K 1/8W
R4 100 1/8W
R5 100 1/8W
R6 100 1/8W
R7 47 1/8W
R8 47 1/8W
R7 10K 1/8W
TO J104 10A BBM0
TO J104 11B BBM1
TO J104 11A BBM2
TO J104 12B BBM3
TO J104 12A BBM4
TO J104 13B BBM5
TO J104 13A BBM6
TO J104 14B BBM7
TO J104 8A BCM0
TO J104 9B BCM1
TO J104 9A BCM2
TO J104 10B BCM3
N.C
TO J103 8B SEN INT
TO J103 7B RE INT
TO J103 10A BB10
TO J103 11B BB11
TO J103 11A BB12
TO J103 12B BB13
TO J103 12A BB14
TO J103 13B BB15
TO J103 13A BB16
TO J103 14B BB17
TO J103 7A BC10
TO J103 8B BC11
TO J103 8A BC12
TO J103 9B BC13
TO J103 9A BC14
TO J103 10B BC15
TO J103 8A KEY INT
TO J103 25A GPD0
TO J103 26B GPD1
TO J103 26A GPD2
TO J103 24B GPD3
TO J103 24B EOI
TO J103 23A DAV
TO J103 23B NRFD
TO J103 22A NDAC
TO J103 IFC
TO J103 25B BRO
TO J103 24A ATN
TO J103 27A GPD4
TO J103 26B GPD5
TO J103 26A GPD6
TO J103 29A GPD7
TO J103 21A REN


U1 TC74HC374
U2 TC74HC374
U7 TC74HC374
U9 TC74HC374
U8 TC74HC374
U11 TC74HC244
U10 TC74HC244
U13 TC74HC244
U12 TC74HC244
SLOW FAST
LOG/LN
LEVEL
RATIO
B/N
DISPLAY
PLOTTER
PLOT MODE
UPPER
FREQ
LOCAL
RCL
LOWER
AMPTD
MANUAL
AUTO
MODIFY



Model VP-7722P and VP-7722A are identical except indication of "A" or "P".

The model name VP-7722P appears in manual should be read as VP-7722A.

AUDIO ANALYZER

VP-7722A

SERVICE MANUAL

Matsushita Communication
Industrial Co., Ltd.
4-3-1, Tsunashima-Higashi
Kohoku-ku, Yokohama, Japan
Tel: (045) 531-1231
Telex: 3822-671

Printed in Japan

TABLE OF CONTENS

1. GENERAL	1-1
2. SPECIFICATIONS	2-2
3. CIRCUIT DESCRIPTION	3-1
3.1 POWER SUPPY	3-1
3.2 OSCILLATOR	3-4
3.3 PRE AMPLIFIER	3-6
3.4 1ST,2ND NOTCH BOARD	3-10
3.5 DIGITAL CIRCUIT	3-16
4. ADJUSTMENT	4-0
4.1 PREPARATION	4-1
4.2 POWER SUPPLY	4-2
4.3 MASTER BOARD	4-4
4.5 ATTENUATOR BOARD	4-8
4.6 PRE AMPLIFIER (L CHANNEL)	4-10
4.7 PRE AMPLIFIER (R CHANNEL)	4-16
4.8 1ST NOTCH BOARD	4-16
4.9 2ND NOTCH BOARD	4-23
4.10 1ST NOTCH BOARD	4-25
4.11 A/D CONVERTER BOARD	4-28
4.12 TROUBESHOOTING FLOW	4-29
5. PARTS LIST	5-1
6. CIRCUIT DIAGRAM	6-1

1. GENERAL

1.1 INTRODUCTION

The Audio Analyzer VP-7722P is a multifunctional measuring instrument for high-fidelity audio equipment. The Built-in signal source covers a frequency range from 10 Hz through 110 kHz. Seven basic functions measure the distortion factor, S/N, level, averaged signal level, ratio of two signal levels, intermodulation distortion and frequency.

The analyzer consists of a signal source with an extremely low distortion factor (0.0001% typical), measuring system (0.001% at full scale), and a signal processing unit having four microprocessors. It provides high-speed measurement with extremely low distortion. The distortion factor measuring system employs the DSP (digital signal processing), to select and measure the desired harmonic component.

The fully automatic mode realizes simple operations to perform rather complex measurements. The VP-7722P can also be operated in the manual mode or with the remote control. For remote control operations, the standard GP-IB interface can be used and preset front panel conditions registered in the memory can be recalled as needed. Measured data can be sent to a host computer via the GP-IB interface. With the talk-only mode of the GP-IB function, a plotter can be directly driven without using a host computer.

The VP-7722P can be widely used for the production control, quality control, inspection, laboratory analyses, and as a component of measuring systems.

1.2 FEATURES

- Programmable audio oscillator with extremely low distortion and high output

  The frequency range is from 10 Hz to 110 kHz with a distortion factor of 0.0001% (typical). The high-performance signal source has the attenuator system of up to 99.9 dB in 0.1 dB steps and the output is up to 10 Vrms (open end).

• Harmonics measurement with extremely low distortion

The fundamental frequency notch filter is automatically tuned by a low-frequency counter. The VP-7722P is capable of acting as an ordinary distortion meter with the distortion factor of 0.01% f.s. in the normal mode and 0.001% f.s. in the THD mode which is the harmonic analyzing mode using the DSP system. The harmonic analysis of 2fo, 3fo, and 5fo can be performed with the VP-7722P.

• High-sensitivity level meter

The level meter of the instrument is a high-sensitivity meter of 300 μV f.s., both in the rms and average responding modes. The meter also has the relative indication variable (REL LEVEL) function, in which the reference point for measurements can be set to either the current measured level or a desired constant level. Display units selectable include V (mV), dB (1 V = 0 dB), and dBm (1 mW = 0 dBm, 600 Ω).

• S/N measurement of 0 dB to 80 dB f.s.

The signal-to-noise ratio is measured in synchronization with the signal source on/off switch. No connection change or ratio meter is required for the measurement. Releasing the switch automatically activates the measure-ment. The 400 Hz HPF, 30 kHz/80 kHz LPF, and A-curve psophometric weighting filters are built in the circuit.

• Ratio measuring function for crosstalk measurement

The level ratio (L/R, R/L) of signals supplied to two input terminals on the front panel can be measured over a dynamic range of 80 dB or more. This function is convenient for measuring crosstalk or separation.

• IMD measuring function conforming to SMPTE

• High-speed, high-resolution frequency measurement

A reciprocal-type low-frequency counter is included. Frequency can be measured from 10 ms to 20 ms typical with 5-digit resolution.

• Averaging function for level measurement

The signal averaging function is effective for the level measurement of signals containing large amount of noise.

• Preset memory function

Up to 100 measuring conditions including the settings of oscillation frequency, measuring unit, etc. may be stored in 100 sets of registers. Stored data can be recalled either by entering the register number or sequential method. A special remote control interface for the memory recall function is provided as a standard component. With this function, the register number can be externally accessed by sequentially increasing or decreasing the number. Merely pressing a switch after setting the register number sets the front panel for the desired measuring conditions.

• Built-in limit function

The VP-7722P can be used as a monitor in production lines with this function. The user can preset a reference upper or lower limit value or both of them. If a measured value exceeds the limit, an alarm sounds. These limit values can also be stored in the preset memory.

• AUTO measurement function

The AUTO mode provides automatic turning on/off of the fundamental notch filter, level setting, measuring range setting, etc. and all that is required for the operator is supplying the signal to be measured. A certain function of the AUTO mode can be reset if so desired. Once reset, the function can be operated manually independently from other settings.

• GP-IB interface

The GP-IB interface is provided as a standard component in addition to the remote control interface for the memory recall function. The GP-IB interface is used for receiving control data from a host computer and sending measured data to the host computer.

2. SPECIFICATIONS

2.1 OSCILLATOR FREQUENCY RANGE

Normal:	10 Hz to 110 kHz (4 ranges)
IM signal:	LF: 50/60 Hz
	HF: 2 kHz to 10 kHz
Display:	4-digit LED
Accuracy:	±2% of reading

2.2 OUTPUT RANGE

Normal:	14.0 dB to -85.9 dB (16.2 dBm to -83.7 dBm)
IMD signal:	4.0 dB to -85.9 dB (6.2 dBm to -83.7 dBm)
Output control:	Variable at 0.1 dB steps
Display:	"-" sign and 3-digit LED
Accuracy:	Within ±0.5 dB
Output resistance:	600 Ω
Distortion factor:	0.0002% (50 Hz to 10 kHz)
IMD signal mixing ratio:	LF:HF = 1:1 to 8:1

2.3 MEASURING SYSTEM

Measuring functions:

(1) Frequency measurement
(2) Level measurement (with relative level variable function)
(3) S/N measurement
(4) Distortion factor measurement
(5) SINAD measurement
(6) IM distortion measurement
(7) Ratio measurement (L/R, R/L)
(8) Signal averaged signal level measurement

Frequency measurement

Input level range:	0.1 Vrms to 100 Vrms
Frequency range:	10 Hz to 110 kHz
Measuring system:	Reciprocal counter
Reference signal accuracy:	80 MHz 5×10^{-5}
Display:	5-digit LED display

Level measurement

Measuring range:	300 µV to 100 V full scale (7 ranges) (40 dB to -70 dB)
Frequency range:	10 Hz to 300 kHz
Accuracy:	±2% of f.s.
Detection response:	RMS and average response

Distortion factor measurement

Fundamental frequency:	10 Hz to 110 kHz (4 ranges)
Input level range:	0.133 V to 100 V f.s.
Normal mode:	0.01% to 100% f.s. (5 ranges)
THD1 mode:	0.001% to 100% f.x. (6 ranges) (Detection band width: 10 fo)
THD2 mode:	1%, 100% f.s. (2 ranges) (Detection band width: 10 fo)
Harmonic analyze mode:	0.001% to 100% f.s. (6 ranges) (Only high harmonic components selected from 2fo, 3fo, 4fo, and 5fo are detected.)
Fundamental frequency rejection ratio:	100 dB or more (Normal mode: 10 Hz to 15.99 kHz)
Harmonic accuracy:	Within ±1 dB (Normal mode for a fundamental of 10 Hz to 15.99 kHz)

S/N measurement

Frequency range:	10 Hz to 300 kHz
S component level range:	0.316 mV to 100 V f.s. (7 ranges)
Measuring range:	Measuring range differs depending on the S level

Ratio Measurement (L/R, R/L)

Frequency range:	10 Hz to 300 kHz
Denominator level range:	0.133 V to 100 V f.s.
Measuring range:	60 dB to -80 dB f.s. (Measuring range differs depending on the denominator level range.)

SINAD measurement

Measurement system:	Conforming to the normal mode for distortion factor measurement

IM distortion measurement

Frequency range:	LF: 50 Hz or 60 Hz HF: 2 kHz to 10 kHz
Input level range:	100 V to 0.133 V f.s. as RMS value of 2-signal mixing
Mixing ratio of 2 input signals:	1:1 to 8:1 (LF:HF)
Measuring range:	100% to 0.01% (5 ranges)

Averaged signal level measurement

Range:	0.133 V to 100 V f.s.
Measuring range:	0.316 mV to 100 V f.s.
Number of averaging:	Arithmetic mean of 16, 32, 64, 128 and 256

2.4 COMMON ITEMS

Input impedance:	100 kΩ, 150 pF Balanced/unbalanced
Output terminals:	Monitor output, normal AC monitor and DSP AC monitor, DC output
Filters:	HPF: 400 Hz LPF: 30 kHz/80 kHz Weighting of noise curve psophometric of JIS, IHF
Built-in interface:	GP-IB, memory control
Remote control:	GP-IB: Basic listener, basic talker and talk only Remote/local function, Device clear function Memory control: Increment/decrement memory register number Recall, Modify

2.5 POWER REQUIREMENTS

Power voltage:	100 V, 120 V, 220 V, 240 V ±10%
Frequency:	50/60 Hz
Power consumption:	Approx. 120 VA

2.6 DIMENSIONS & WEIGHT

Dimensions: 150 x 426 x 400 (H x W x D) (mm)

Weight: Approx. 17 kg

2.7 OPTION

One of the following filters (VQ-071F) may be installed in the VP-7722P:

Model No.	Description	Mainframe+weighting filter
VQ-071F1	IHF BPF	VP-7722A OPT.01
VQ-071F2	CCIR ARM (DOLBY)	VP-7722A OPT.02
VQ-071F3	CCITT P53 (PROG)	VP-7722A OPT.03
VQ-071F4	CCITT P53 (TEL)	VP-7722A OPT.04
VQ-071F5	DIN-AUDIO	VP-7722A OPT.05
VQ-071F6	20kHz LPF	VP-7722A OPT.06
VQ-071F7	C-MESSAGE	VP-7722A OPT.07
VQ-071F8	1kHz BPF	VP-7722A OPT.08
VQ-071F9	3kHz BPF	VP-7722A OPT.09
Standard	IEC-A	VP-7722A

3. CIRCUIT DESCRIPTION

3.1 POWER SUPPLY A4

Three power supply systems are installed, those are, for the digital circuit, oscillator, and analyzer.

3.1.1 Power supply for the digital circuit

Three types of AC power are supplied from the secondary of power transformer T1, which are used for the +5V (A), +5V (B) and -5V power supplies. The +5V (A) power supply is rectified by diode CR1 (S30SC4F) and is supplied to the smoothing capacitors C11 through C14. The power supply after smoothing is fed to the regulator composed of U12 (NJM2930-5) and Q1 (2SB1055). The regulated power is supplied to the digital circuit via connectors P21, J76, J21, and P76.

The same smoothing capacitors for the +5V (A) power supply are used for the +5V (B) and the power is regulated by the regulator composed of U11 (NJM2930-5) and Q2 (2SB1055). The regulated +5V (B) power supply is fed to the digital circuit via connectors J76 and P76.

The -5V power supply is rectified by diodes CR11 and CR12 (V06B) and fed to the smoothing capacitors C23 and C24. The smoothed power is fed to the regulator circuit of U12 (NJM7905A), then supplied to the digital circuit as the regulated -5V power via connectors J76, P21, P76 and J21.

Each power supply circuit has a 3-pin regulator and the common is shown with $\frac{\perp}{\pi\pi}$, which is connected to the chassis.

3.1.2 Power supply for the oscillator

One AC power system from the secondary of power transformer T1 is fed to the power supply for the oscillator. The power is rectified by diode CR17 (S2VB10F). The position (+) side is smoothed by capacitor C65, while the negative (-) side is smoothed by capacitor C67.

The +24V power supply is fed from smoothing capacitor C65 to the regulator circuit of u16 (NJM78M24A). The regulator +24V power supply is fed to the oscillator circuit via connector J21 and P21.

The -24V power supply is fed from smoothing capacitor C67 to the regulator circuit of U17 (NJM79M24A). The regulated -24V power supply is fed to the oscillator circuit via connector J21 and P21.

The +15V power supply is fed from the regulated +24V output to the regulator circuit composed of U18 (NJM78M12A), U20 (NJM4558 1/2) and VR12 (RD6.2EB2). The regulated +15V power supply is fed to the oscillator circuit via connectors J21 and P21. The VR12 is a Zener diode for the reference voltage and is connected to pin 5 of U20. The +15V is divided by resistors R43 through R45 and the divided voltage is fed to pin 6 of U20. The voltage difference between pins 5 and 6 of U20 is amplified, then fed from output pin 7 to the GND pin of U18 to make the U18 output voltage to a constant level at +15 V.

The -15V power supply is fed from the regulated -24V output to the regulator composed of U19 (NJM79M12A) and U20 (NJM4558 1/2). The regulated -15V is supplied to the oscillator circuit via connectors J21 and P21. The common reference voltage is supplied to pin 3 of U20. The voltage difference between +15V and -15V is divided by resistors R47 and R48, fed to pin 2, amplified by U20, and fed to the GND pin of U19 so that the U19 output voltage is a constant level at -15 V.

The common is shown with ⏚, which is floated from the chassis by a resistor R285 (A5). The +5V for the digital circuit is used as the power supply for relays in the oscillator circuit.

3.1.3 Power supply for the analyzer

Two power supply systems are connected to the analyzer section from the secondary of power supply transformer T1, and are used as +15V (A), -15V (A) and +5V (A) power supplies. The ±15V power supplies are rectified by CR16 (SVB10F) and the +15V is smoothed by C51 while the -15V, by C55.

The +15V (A) power supply is fed to the regulator composed of Q11 through Q13, U15 (NJM4558 1/2) and VR11 (RD6.2EB2). The regulated +15V (A) power supply is fed to the analyzer circuit via connectors J21 and P21. VR11 is the Zener diode for the reference voltage. U15 is the differential amplifier who controls the series regulator composed of transistors Q11 through Q13.

The -15V (A) power supply is fed from smoothing capacitor C55 to the regulator composed of Q14 through Q16 and U15 (NJM4558 1/2). The regulated -15 is supplied to the analyzer circuit via connectors J21 and P21.

The common is used as the reference voltage for U15. The voltage difference after dividing by resistors R34 and R35 is amplified to control the series regulator composed of transistors Q14 through Q16.

The +5V (A) power supply is rectified by CR15 (S4VB10F), smoothed by C35, and fed to the regulator of U14 (SI-3052V). The regulated +5V power supply is fed to the analyzer circuit via connectors P21 and J21.

The common is shown with ⏚, which is connected to the chassis at a point on the ANALOG MPX board.

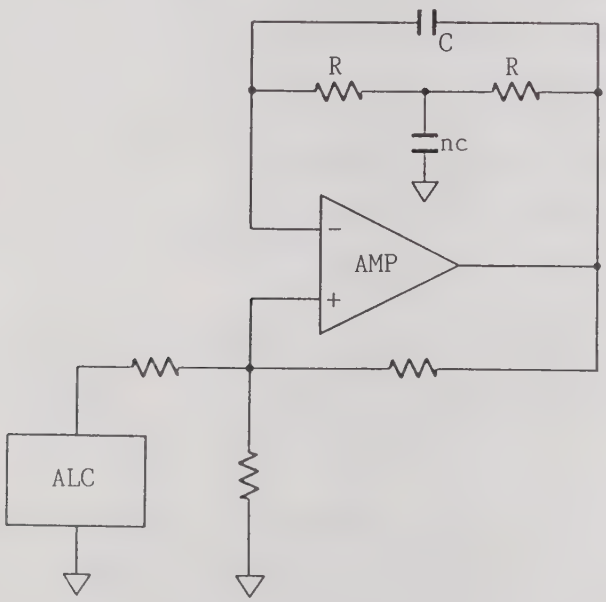
3.2 OSCILLATOR A5, A6

The oscillator is made up with the OSC A6 and ATT A5 boards. The main oscillator for the 10 Hz to 110 kHz oscillation is installed on the OSC board. The amplitude of the oscillation is controlled with the amplitude regulator.

On the ATT board are the oscillator for the IMD TEST source, mixer and output amplitude controller.

3.2.1 OSC board A6

The main oscillator consists of the amplifier composed of transistors Q1 through Q13, and the bridged-T RC oscillator composed of resistors R10 through R37, capacitors C1 through C3 and C11 through C19.
Figure 3-1 shows the circuit diagram of the oscillator block.



$$f_o = \frac{1}{2\pi RC\sqrt{n}}$$

Where: n is 25.

Figure 3-1 Oscillator block

The bridged-T circuit is inserted in the negative feedback loop as the amplifier A. Since the signal attenuation factor of the bridged-T circuit, when the frequency is $f_o = \frac{1}{2\pi RC\sqrt{n}}$, is 1/n, an amplification of n times is given to the positive feedback loop for a stable oscillation. The capacitor shown with nC in Figure 3-1 is switched by tenfold each time the frequency band is changed. The resistances of resistors R are changed in small steps to switch frequencies within a band. The 12-bit, BCD (binary code decimal) signal is used for the least significant digit and the 10th digit. The HEX signal is used for the four more-significant digits.

For a stable oscillation, the automatic level controllers are installed to the positive feedback loop in series. The analog multiplier plays the roll equivalent to the variable resistor of the automatic level controller U5 (MC1494L). The AC input level to the common-phase input of the oscillator amplifier is controlled according to the output level of the oscillator level detector, which will be discussed later, via the phase inversion amplifier U3 (NE5534).

A peak detector is used as the oscillator level detector. The output from oscillator is peak-detected at the track-and-hold circuit composed of transistors Q25 through Q27 via buffer amplifier U12 (NJM082DT). C59 is the capacitor for the "hold", which is forced discharged at every cycle of the oscillation frequency by the discharger composed of U9 (NJM311D), U10 (TC4528BP), U11 (TC4011BP) and Q28. The threshold level for the tracking circuit is determined by the reference voltage produced by U15 (TL081) and VR5.

The voltage held at C59 is fed to buffer amplifier U12, then to sample-and-hold circuit U13 (μPC649C). The sampling timing is determined by the timing circuit composed of U9 through U11 so that the peak voltage of each cycle of the oscillation frequency is held. The held voltage is supplied to the analog multiplier as the differential voltage via the fast AGC and slow AGC of U16 (NJM082DT). The reference voltage for the AGC circuits is determined by U15 and VR5.

When the peak detection system is used, the oscillation is likely to be stopped because of the external noise when the frequency is changed and some time is required for restart of the oscillation. The oscillation restart circuit composed of U7 (NJM311D), U8 (TC4528BP), U6 (AN6914), and transistors Q22 and Q23 serially monitors the oscillation level and restarts the oscillation when stopped by increasing the gain of the oscillation loop.

3.2.2 ATT board

The attenuator consists of 10 600Ω π-type attenuators for 0.1 dB through 51.2 dB attenuation. The combination of K18 through K27 allows the setting of up to 99.9 dB by 0.1 dB steps.

The bridged-T RC oscillator is used for the IMD (inter-modulation distortion) TEST source as in the case of the main oscillator. The oscillator is made of U27 (NJM082DT) and the AGC is applied by Q38, CR15 and CR16. The oscillation spots are 50 Hz and 60 Hz, and the oscillation frequency is switched by analog switch U26 (TL191C).

U23 (NE5534) mixes the IMD TEST source and the main oscillation and the mixing ratio is between 1:1 and 8:1. The mixing ratio is switched by analog switch U22 (μPD4066) and the signal after mixing is fed to the attenuator.

The reverse power protector composed of U36 through U39 and K28 is installed to the OSC output terminal to protect the attenuator from burning when an excessive external power is applied.

3.3 PREAMPLIFIER A7

The identical PREAMP boards are installed; one for the L channel and the other for the R channel. These two boards act as the input for L and R channels. The following four functions are given to the PREAMP boards:

(1) Input attenuator (0 dB through 30 dB, 10 dB steps)
(2) Preamplifier (amplification: 0 dB through 27.5 dB, level function: 10 dB steps, distortion: 2.5 dB steps)
(3) Detection of input level and average value
(4) Filtration for the IMD measurement

3.3.1 Input connector A7-1

Two input connectors of A and B per a channel is installed in the input circuit so that the balanced measurement can be performed. In the unbalanced input, the input A circuit alone is used. In the balanced input, the differential signal between inputs A and B are measured.

3.3.2 Input attenuator A7-1

The input attenuator is activated when the input signal level is greater than 3.16 Vrms. The built-in -10 dB and -20 dB attenuators are switched by K1 and K2 for attenuation of 0 dB, -10 dB, -20 dB and -30 dB.

3.3.3 Preamplifier A7-1

The preamplifier consists of three discrete differential amplifiers (A7-3) converts the balanced input to the signal-ended signal. Amplifier A1 alone is activated for the input of unbalanced signal. The amplification factors of amplifiers A1 and A2 can be changed between 0 dB and 27.5 dB by 2.5 dB steps by means of switching of K3 through K6. The input signal level can be conditioned to 3.16 Vrms with the combination of the input attenuator and preamplifier by 2.5 dB steps (total of 24 steps).

This 2.5 dB step control is used in the distortion measurement to prevent adversely influenced signal-to-noise ratio, but the preamplifier operates with 10 dB steps in the level measurement.

3.3.4 Average detector A7-2

The signal after the preamplifier is fed to the average detector which detects the input signal level in the DISTORTION, SINAD, THD, RATIO and AVERAGE measurements. The level value detected is used as the denominator for the ratio calculation. The detected DC signal is converted to the digital data by the A/D converter in the digital circuit for the calculation process by the microprocessor.

The detector consists of U31 (μPC157C) and U32 (μPC157C), and uses the average detection system. The cutoff frequency of smoothing low-pass filter U34 (NJM082BD) is switched to two stages by U33 (TL191CN) to increase the measurement speed.

3.3.5 IMD measurement filter A7-2

The output from the preamplifier is also supplied to the IMD measurement filter (IMD represents the inter-modulation distortion). The IMD measurement circuit consists of the 500 Hz high-pass filter composed of U4 and U5 (NJM082BM), the ABSOLUTE VALUE circuit of U1, the 500 Hz low-pass filter composed of U2 and U3, and the 10 Hz low-pass filter of U3. Figure 3-2 shows the block diagram of the IMD measurement circuit.

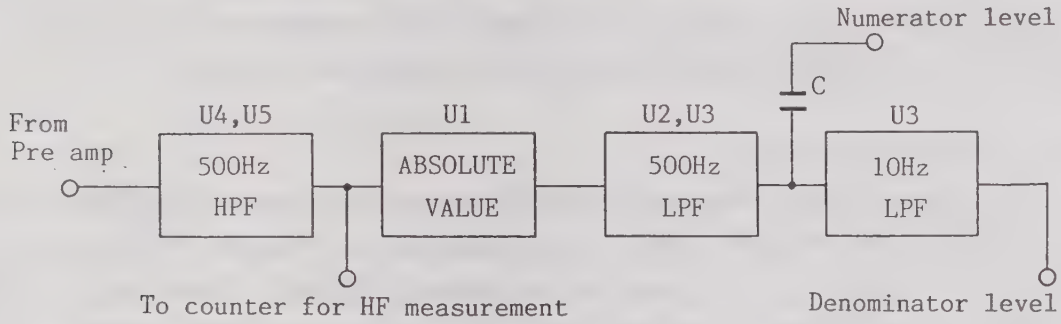
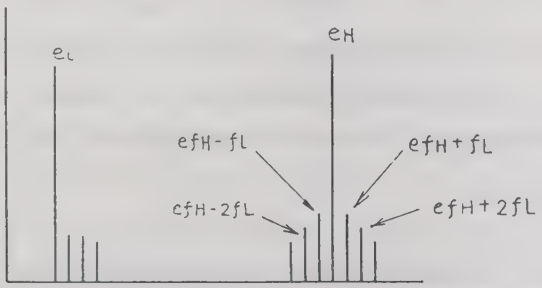


Figure 3-2 Block diagram of IMD measurement circuit

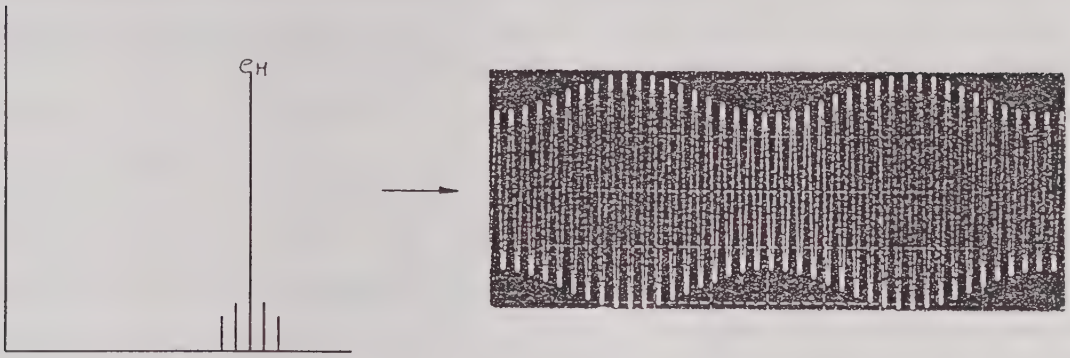
The IMD measurement circuit feeds the mixed signal of the low frequency (50 Hz/60 Hz) and the high frequency (for example, 7 kHz) to the testing unit and detects the inter-modulation component that appears in the dual sideband of the high frequency signal. See Figure 3-3 for the detection mechanism.

IMD spectrum:

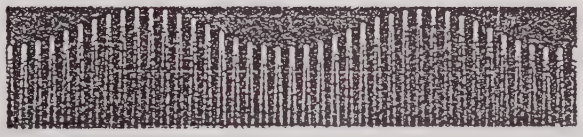


$$= \frac{\sqrt{(e_{fH}+f_L+e_{fH}-f_L)^2+(e_{fH}+2f_L+e_{fH}-2f_L)^2}}{e_H}$$

500Hz high-pass filter output spectrum and waveform:



ABSOLUTE VALUE output waveform:



500Hz LPF output waveform (numerator level) and 10Hz LPF output waveform (denominator level):

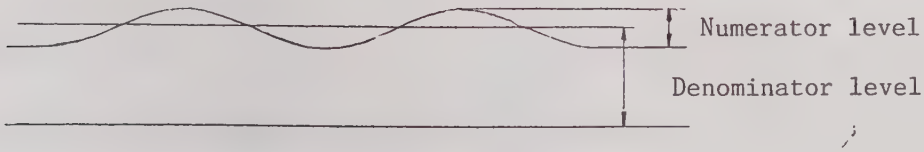


Figure 3-3 Detection method for IMD measurement

3.4 1ST, 2ND NOTCH BOARDS A8, A9

The notch circuit (the fundamental wave rejection filter) consists of two stages; 1st and 2nd NOTCH boards. Two-stage multiple feedback is used to obtain wide, but steep rejection of the fundamental wave.

3.4.1 1st NOTCH board

The 1st notch filter consists of the U12 (NE5534) and the ALC circuit composed of the automatic tuning circuit U23 and automatic balancing circuit U21. Analog multipliers are installed in both circuits as the variable resistors so that the chopper of the field-effect transistor, sync detection circuit, can yield the minimum fundamental wave rejection factor. Figure 3-4 shows the block diagram of the 1st notch circuit.

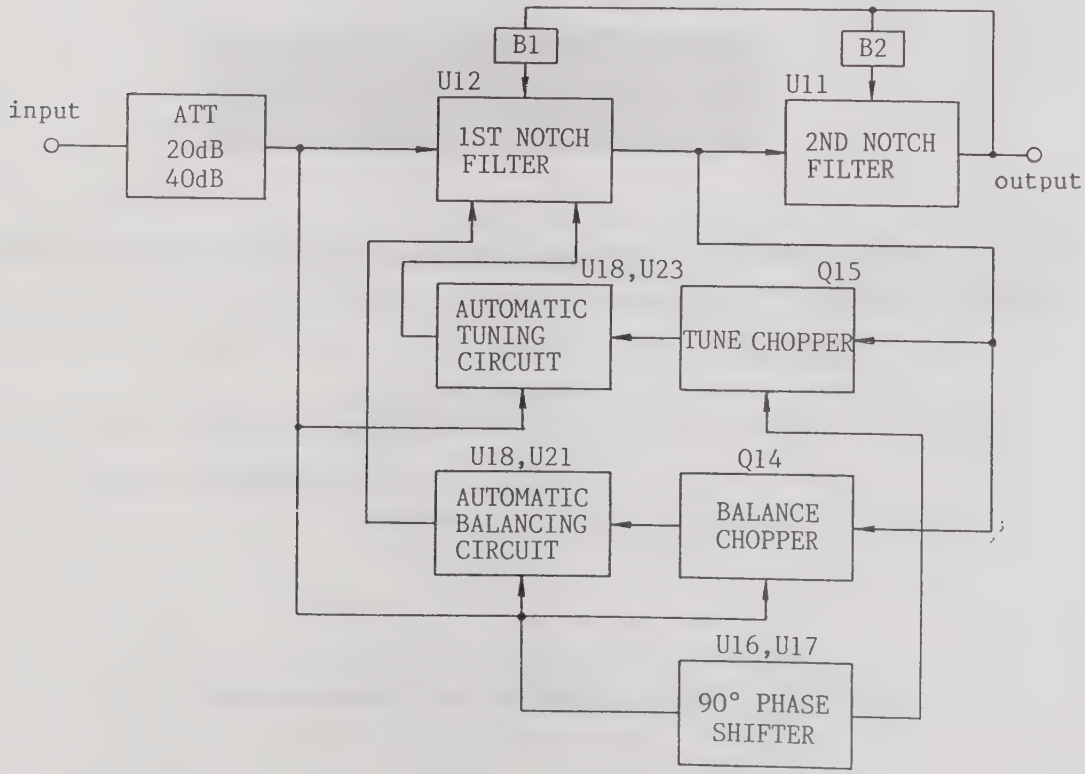


Figure 3-4 Block diagram of 1st notch circuit

The Wien's bridge type filter is used as the 1st notch filter and the frequency determined by the bridge is $f_o = \frac{1}{2\pi R_1 C_1}$. The R constant of the bridge is selected by relays K1 through K12, while relays K13 through K15 are for the C constant. The bridge is shortcircuited by relay K16 and acts as an amplifier in other measurement modes than the DISTORTION. The schematic circuit diagram is shown in Figure 3-5.

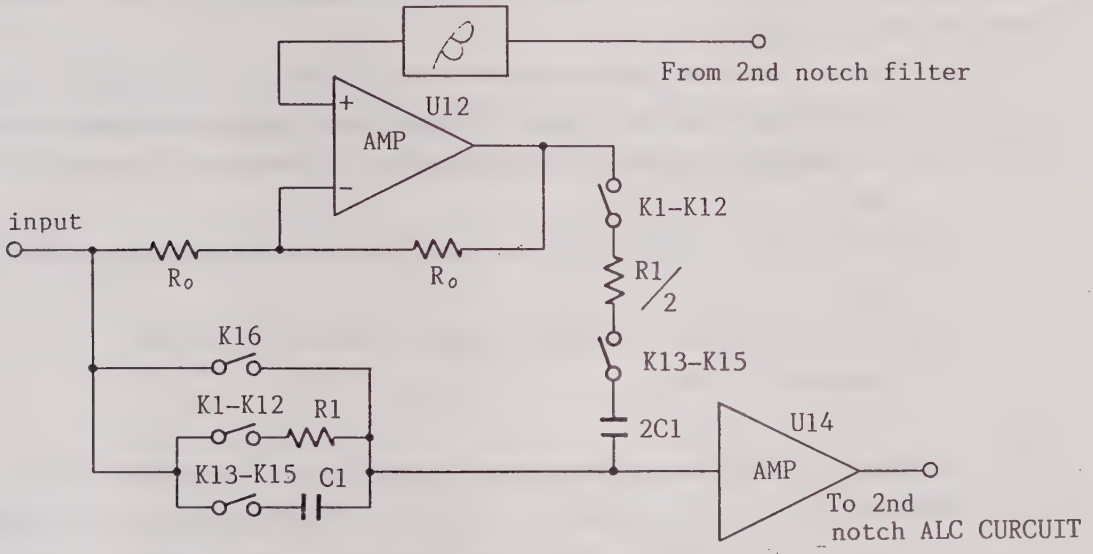


Figure 3-5 Schematic circuit diagram of 1st notch filter

3.4.2 2nd NOTCH board A9

The 2nd notch filter circuit is basically the same as the 1st notch filter shown in Figure 3-5, with exceptions of C and R constants and resistance of the feedback resistor of amplifier U11. An analog switches U12 through U17 are used for switching the R constant.

The signal from the 2nd notch filter is fed to the high-pass filter U21. The following three types of high-pass filters are built-in, which is switched by analog switch U20.

(1) High-pass filter that passes signals greater than 10 Hz

(2) High-pass filter that passes signals greater than 20 Hz

(3) High-pass filter that passes signals greater than 400 Hz

One of the three high-pass filters is selected. Whenever the 400 HPF is turned on as the measurement filter, filter (3) is selected. The filter has the filtration characteristics of 18 dB/OCT and is -3 dB at 400 Hz.

When the 400 Hz HPF is off and the response is set to FAST, filter (2) is selected. Filter (1) is selected when the 400 Hz HPF is off and the response is set to SLOW. Filters (1) and (2) have the filtration characteristics of 12 dB/OCT.

The signal supplied from the HPF passes one of the five filters of U22. The selection of the filter is made by the analog switch U26. The five filters are as follows:

(1) Filter that has characteristics of 500 kHz LPF, 18 dB/OCT (This filter is selected when all measurement filters are set to off.)
(2) 30 kHz LPF, 18 dB: Filter that has -3 dB characteristics at 30 kHz
(3) 80 kHz LPF, 18 dB: Filter that has -3 dB characteristics at 80 kHz
(4) Filter that has the characteristics curve of IHF "A"
(5) Optional filter

The attenuators for measurement range switching are installed on the 1st and 2nd NOTCH boards. The attenuator is switch by 20 dB steps and is capable of rang settings up to 100 dB. The block diagram of the 3-stage attenuator is shown in Figure 3-6.

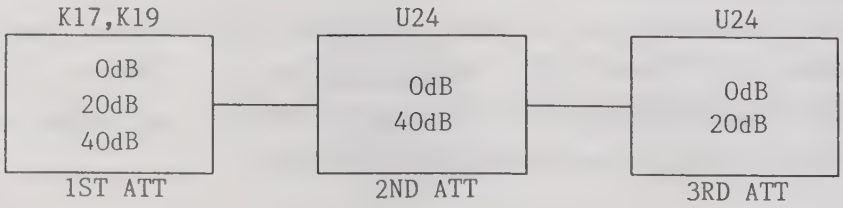


Figure 3-6 Attenuator block diagram

The AC signal from the low-pass filter or the output AC signal from the final amplifier is supplied to the A/D CONVERTER board A11 for the average processing by the DSP (digital signal processor) and the digital filter processing. The output from the low-pass filter is used in the THD2 mode,

while the output from the final amplifier is used in the THD1 and harmonic analysis modes.

In other measurement modes than THD1, THD2 and harmonic analysis modes, the AC signal from the final amplifier is detected and supplied to the A/D converter as the DC signal. Two detection circuits are installed; the average detector U28 and RMS detector U32, which are switched by analog switch U32.

For the measurement response switching, the time constant of the low-pass filter U33 can be switched to two stages by analog switch U32.

3.5 DIGITAL CIRCUIT

The digital circuit consists of the following seven printed circuit boards:

(1) A/D CONVERTER board A11
(2) DSP board A12 (Digital Signal Processor)
(3) INTERFACE board A13
(4) MASTER board A14
(5) COUNTER board A15
(6) MAIN PANEL board A16
(7) SUB-PANEL board A17

Microprocessors μPD8085A are installed on the INTERFACE, COUNTER and MASTER boards. The INTERFACE board functions the GP-IB data transfer, plotter control, panel control, remote control, RC oscillation control and limit function control.

The COUNTER board controls the T and N counters and setting of the programmable divider as well as the various control of the frequency measurement. The MASTER board functions the control of the analyzer section, data processing, AUTO RANGE operation, and the CPUs on the INTERFACE and COUNTER boards.

On the DSP board is the digital signal processor that carries out the data processing in the THD and analytic modes. The DSP is controlled by the CPU of the MASTER board. The overall block diagram of the digital circuit is shown in Figure 3-9.

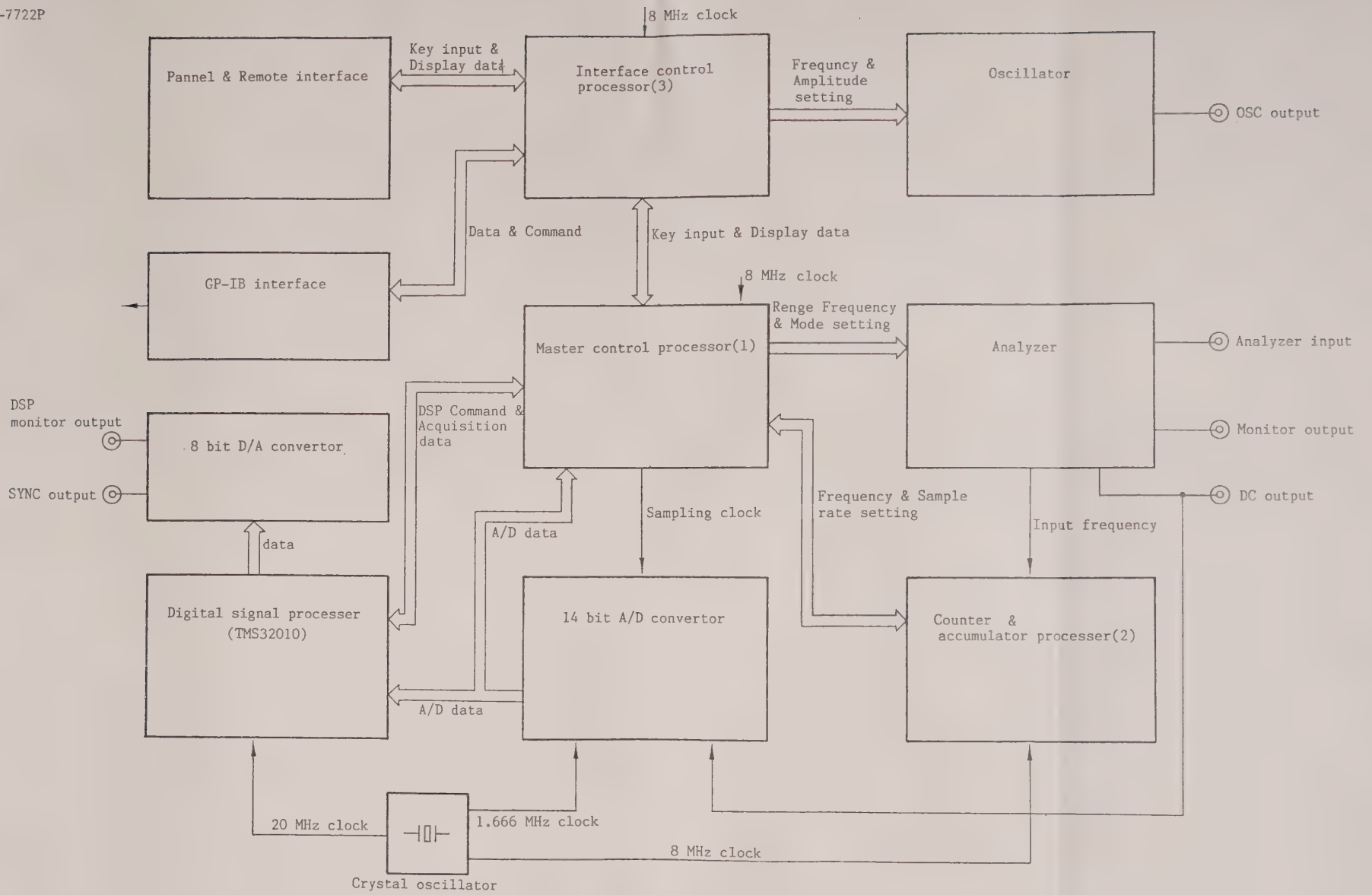


Figure 3-9 Schmatic block diagram of digital assembly

4. ADJUSTMENT

Described in this section are adjustment required when faulty operation is detected or any of electronic components is replaced.

Many of adjustment procedures described this section require servicing after removal of covers.

WARNING

Disconnect power cable from the power source before removing the covers.

When servicing with power on , particular care must be paid to avoid personal injury, After removing the covers with the power cable disconnected,mount the instrument on the service bench so that the portion to be serviced is easily accessible. Then connect the power cable and turn the power on.

EQUIPMENT REQUIRED

Equipment required for the adjustment are listed below.

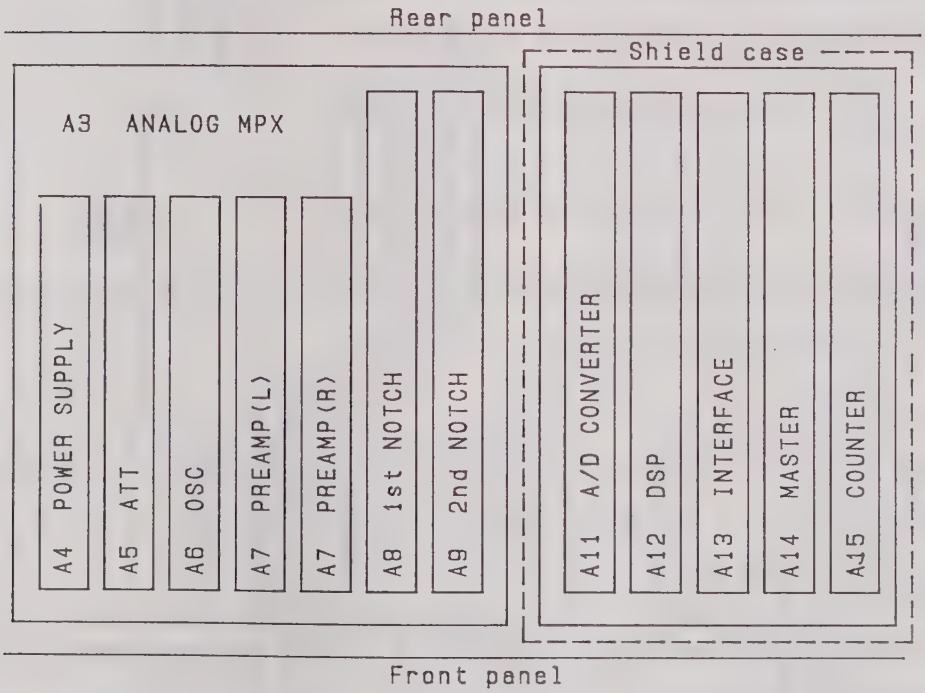
Digital voltmeter	VP-2660B or equivalent
Oscilloscope	VP-5512A or equivalent
Differential voltmeter	Fluke 931AB or equivalent
Frequency counter	Frequency : 10Hz to 500kHz
RC oscillator	VP-7214A or equivalent
AC voltage calibrator	Fluke 5100 or equivalent
600Ω termination	600Ω ±0.1%
Calibrated VP-7722A	

4.1 PREPARATION

Preparations required for adjustments are as follows:

(1) Turn power on and allow the instrument for warm-up for at least 30 minutes.

(2) Install all printed circuit boards to the correct positions as shown in Figure 4-1.



Note 1: PCB board with , marks include adjustment controls.
Note 2: The upper view is shown.

Figure 4-1 PCB slots configurn

4.2 POWER SUPPLY A4

The POWER SUPPLY board consists of the following 11 sections:

(1) Power supply for the oscillator
±24 V and ±15 V
The common side is floated from the chassis with 20Ω resistor.

(2) Power supply for the analyzer
±15 V and +5 V
The common side is connected to the chassis.

(3) Power supply for the digital control section
+5 V (A), +5 V (B), and -5 V
The common side is connected to the chassis.

(4) Power supply for the fan motor
+12 V
The common side is connected to the chassis.

Adjustments required for the power supply are the +15 V for the oscillator and the +15 V for the analyzer.

4.2.1 OSC 15V

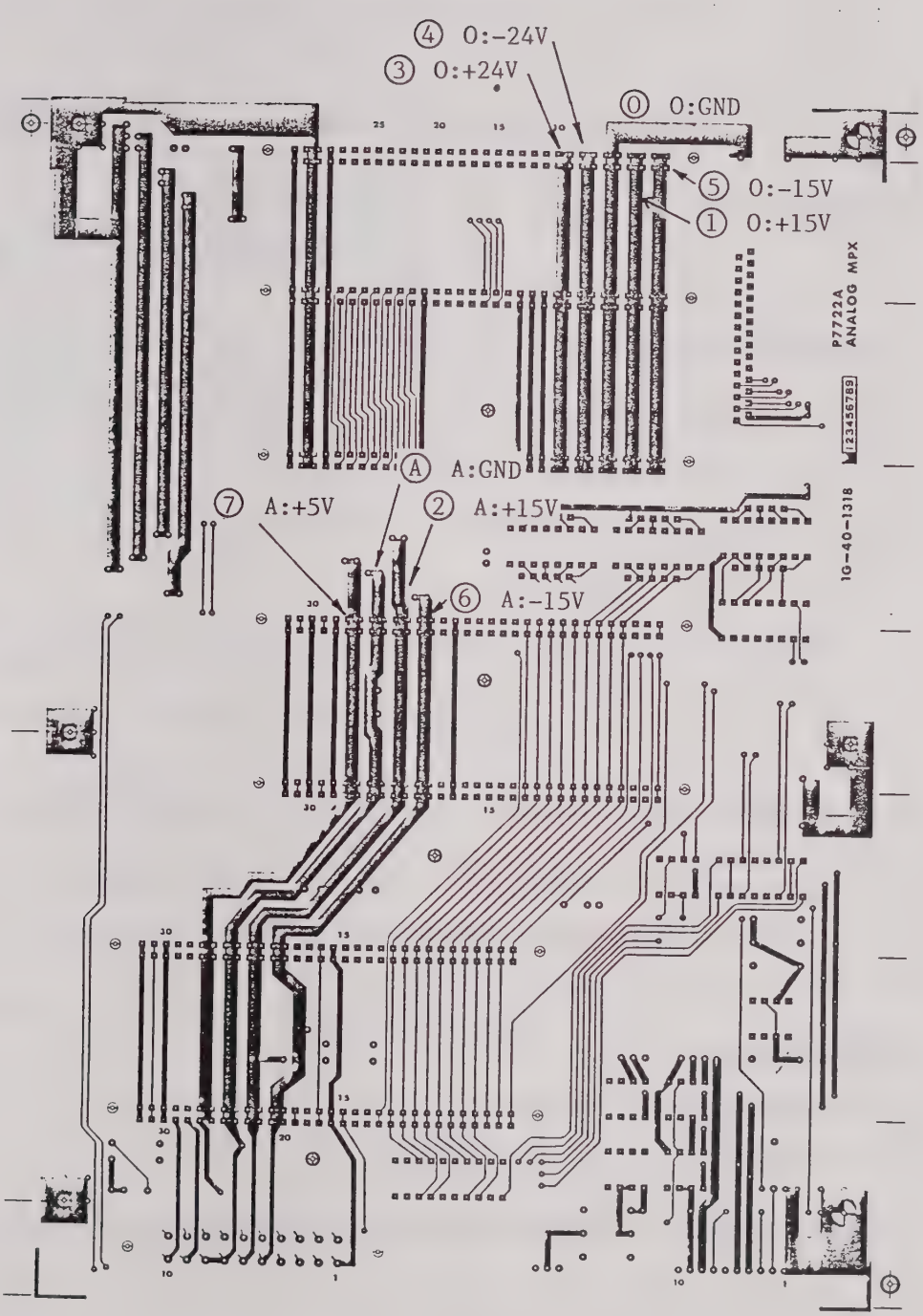
Connect a digital voltmeter to point 1 shown in Figure 4-2. Adjust OSC 15V control R44 so that the meter reads +15 V ±100 mV.

4.2.2 ANA 15V

Connect the digital voltmeter to point 2 shown in Figure 4-2. Adjust ANA 15V control R44 so that the meter reads +15 V ±100 mV.

4.2.3 Voltage checks

Connect the digital voltmeter to points shown in Figure 4-2 and check that measured voltages satisfy the specifications listed in Table 4-1.



O: Oscillator voltage reguretor
A: Analyzer voltage reguretor

Figure 4-2 Test points on POWER SUPPLY board

Table 4-1 Voltage of each check point

		Test point	Specifications
Oscillator section	24 V	③	Within ±1000 mV
	-24 V	④	Within ±1000 mV
	15 V	①	Within ±100 mV
	-15 V	⑤	Within ±150 mV
		⓪ OSC COM	
Analyzer section	15 V	②	Within ±100 mV
	-15 V	⑥	Within ±150 mV
	5 V	⑦	Within ±250 mV
		Ⓐ ANA COM	

Check the power supply voltages for the digital section and the fan motor on the DIGITAL MOTHER board.

(1) 5 V (A): ±250 mV or less
(2) 5 V (B): ±250 mV or less
(3) -5 V: ±250 mV or less
(4) 12 V: ±1000 mV or less

For the power supply deviation, check the following voltages and verify that those voltages are within the specifications.

+24 V 3
A -15 V 6 Ripple voltage must be within 100 mVp-p.
A +15 V 2

4.3 MASTER BOARD A14

4.3.1 80 MHz reference frequency

The adjustment procedure is as follows:

(1) Connect a frequency counter to test point TP1 via an oscilloscope probe.

(2) Connect an oscilloscope to test point TP1.

(3) Adjust coil L6 for the maximum amplitude (approximately 400 mVp-p).

(4) Adjust trimmer C60 for a frequency of 80.0000 MHz.

4.3.2 80 MHz VCO

The adjustment and check procedures are as follows:

(1) Supply a 3 V, 2 kHz signal from the internal oscillator.

(2) Set the front panel to THD1 mode, input range to 3.16 V, and measurement range to 0.001% (fixed range).

(3) Connect an oscilloscope to test point TP3. Adjust coil L3 for -1.5 V.

(4) Verify that voltages measured at test point TP3 is between -2 V and 2 V when the oscillator frequency is changed between 90 kHz and 110 kHz.

(5) Fix the coil with wax.

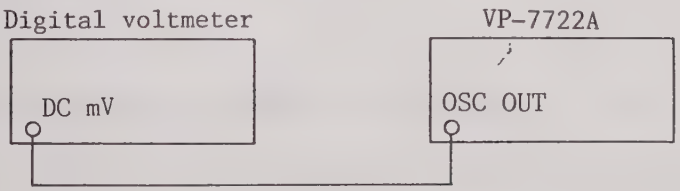
4.4 OSCILLATOR BOARD A6

4.4.1 Offset of oscillator amplifier

The adustment procedure is as follows:

(1) Set the FREQUENCY of the oscillator to 400 Hz and the OUTPUT to 14 dB.

(2) Connect a digital voltmeter, to the OSC OUTPUT of the VP-7722P as shown below. Adjust OSC OFFSET control R52 (abbreviated as OSC OST on the circuit diagram) so that the plus and minus indications of the digital voltmeter is balanced.



(3) Set the distortion control R65 to counterclockwise.

4.4.2 ALC

The adjustment and check procedures are as follows:

(1) Connect an oscilloscope to test point TP2 (the U3 output). Set the FREQUENCY to 1 kHz and the OUTPUT to 14 dB.

(2) Adjust ALC control R56 so that the waveform observed on the oscilloscope is the smallest.

(3) Change the oscillation frequency as listed in Table 4-2 and the waveform amplitude is approximately as shown in the table.

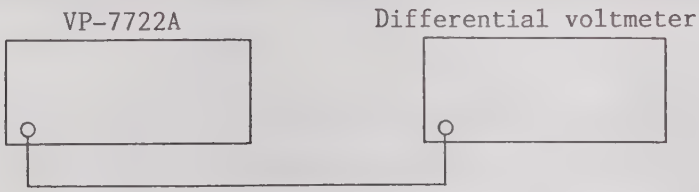
Table 4-2 ALC amplitude limit

Oscillation frequency	Test frequency	Voltage at TP2 (Vp-p)
10.0 to 159.9 Hz	10 Hz	Approx. 800 mV
0.160 to 1.599 KHz	1.5 KHz	Approx. 100 mV
1.60 to 15.99 KHz	1.6 KHz	Approx. 500 mV
16.0 to 110.0 KHz	40 KHz	Approx. 1500 mV

4.4.3 Output

The adustment and check procedures are as follows:

(1) Connect a differential voltmeter to the OSC OUTPUT terminal as shown below:



(2) Set the oscillation FREQUENCY to 400 Hz and the OUTPUT to 14.0 dB.

(3) Adjust AMPTD contro R139 so that the output voltage is 10.0237 Vrms ±1%.

(4) Connect a 600Ω termination and measure the voltage. The voltage must be 5.0119 Vrms ±2%.

(5) Change the oscillation frequency as listed in Table 4-3 and check the flatness as specified in the table.

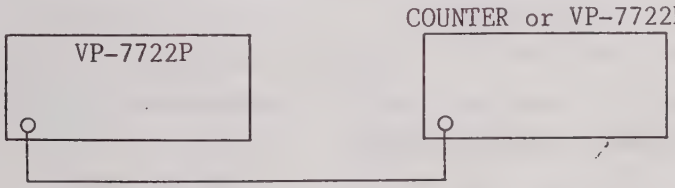
Table 4-3 Flatness verification

Test frequency	Unit	With 600Ω termination (Specification)	Open termination (Reference)
10.0	Hz	Within ±3%	±3%
20.0 159.9 160	Hz	Within ±0.5%	±0.5%
400	Hz	Reference	Reference
1599	Hz	Within ±0.5%	±0.5%
1.60 15.99 20.0	KHz	Within ±0.5%	±0.5%
110.0	KHz	Within ±3%	±3%

4.4.4 Frequency check

The frequency check procedure is as follows:

(1) Connect a frequency counter to the OSC OUTPUT terminal.If a calibrated VP-7722P is available in addition the one to be tested, connect as shown on the right.



(2) Change the oscillation frequency as listed in Table 4-4 and check the frequency.

Table 4-4 Frequency check

Test frequency	Frequency accuracy (Specifications)
100.0 Hz	Within ±3%
1.000 KHz 10.00 KHz	Within ±2%
100.0 KHz	Within ±3%

4.5 ATTENUATOR BOARD A5

4.5.1 LF oscillator output for IMD test signal

The adjustment procedure is as follows:

(1) Connect a differential voltmeter to test point TP1 (U27 output).

(2) Adjust LF AMPTD R236 so that the level at the LF 60 Hz open termination is 4.000 Vrms ±1%.

4.5.2 Output voltage check of IMD test signal

The check procedure is as follows:

(1) Terminate the OSC OUTPUT terminal with a 600Ω termination, then measure the output voltage with a differential voltmeter.

(2) Check that the measured output voltages are 1.5849 Vrms ±10% when the mixing ratio N is changed from 1:1 to 8:1.

4.5.3 LF Frequency check of IMD test signal

The check procedure is as follows:

(1) Connect a frequency counter to test point TP1 (U27 output).

(2) Check that the LF frequency is 50 Hz ±3% or 60 Hz ±3% when the LF frequency switch of the GP-IB address switch on the rear panel is set to the 50 Hz or 60 Hz position.

50 Hz ±3% = 48.5 Hz to 51.5 Hz
60 Hz ±3% = 58.2 Hz to 61.8 Hz

4.5.4 LF frequency synchronization to line frequency

The check procedure for the IMD test signal LF frequency synchronization to the line frequency is as follows:

(1) Set the LF frequency to 50 Hz.

(2) Connect the J77 on the POWER SUPPLY board A4 and J52 on the ATTENUATOR board with a cable (EMCB0330A56V).

(3) Observe the waveform of test point TP1 with an oscilloscope and check that the triggering occures with the line frequency.

(4) Remove the cable connected between POWER SUPPLY and ATTENUATOR boards. Check that the waveform on the oscilloscope freeruns.

Note: The rms voltage of the composite signal such as the IMD test signal can only be measured with a true rms response voltmeter.

4.5.5 Attenuation check

The check procedure for the attenuation factor of the attenuator is as follows:

(1) Set the SOURCE mode (NORM/IMD) to NORM.

(2) Set the oscillation frequency to 400 Hz.

(3) Terminate the OSC OUTPUT terminal with a 600Ω termination. Connect a digital voltmeter to the OSC OUTPUT terminal.

(4) Change the output level according to Table 4-5 and check that the output level at each output level setting is within the specification.

Table 4-5 Attenuation check

	Attenuation factor	Specification
14.0 dB	Reference	
13.9 dB	0.1 dB	
13.8 dB	0.2 dB	
13.6 dB	0.4 dB	
13.2 dB	0.8 dB	
12.4 dB	1.6 dB	±0.05 dB = ±0.5%
10.8 dB	3.2 dB	
7.6 dB	6.4 dB	
1.2 dB	12.8 dB	
-11.6 dB	25.6 dB	
-37.2 dB	51.2 dB	

Note: Accurate checking of attenuation factor should be performed with the substitution method using a standard attenuator, but the above method may be used in the field.

4.5.6 Output OFF attenuator check

The check procedure is as follows:

(1) Set the oscillator frequency to 10.00 kHz, and the OUTPUT to 14.0 dB.

(2) Set the output to OFF by pressing the AMPTD key, the - key three times or more, and the ENTRY key.

(3) Check that the output level is attenuated to -100 dB or less with a digital voltmeter or a calibrated VP-7722P.

4.6 PREAMPLIFIER (L CHANNEL) A7

4.6.1 Offset adjustment of preamplifier

Note: Since three offset trimmers that have the same part number are installed on the PREAMPLIFIER (L) board, they are called the OST1, OST2 and OST3 as shown in Figure 4-3.

(1) Front panel settings:

MODE:	LEVEL
INPUT SELECTOR:	L only (R only for adjustments in Section 4.7)
RANGE:	316 mV fixed range

Terminate the A and B input terminals with 600Ω terminations.

(2) Adjust the offset to 0 V according to the steps and waveforms measured at test points shown in Table 4-6.

Table 4-6 Preamplifier (1) offset adjustment

Adjustment step	Floating selector	Test point	Adjustment control
Step 1	NOT FLT	TP1	Adjust to 0 VDC with OST1 (R11).
Step 2	FLT	TP2	Adjust to 0 VDC with OST2 (R11).
Step 3	FLT	TP3	Adjust to 0 VDC with OST3 (R11).

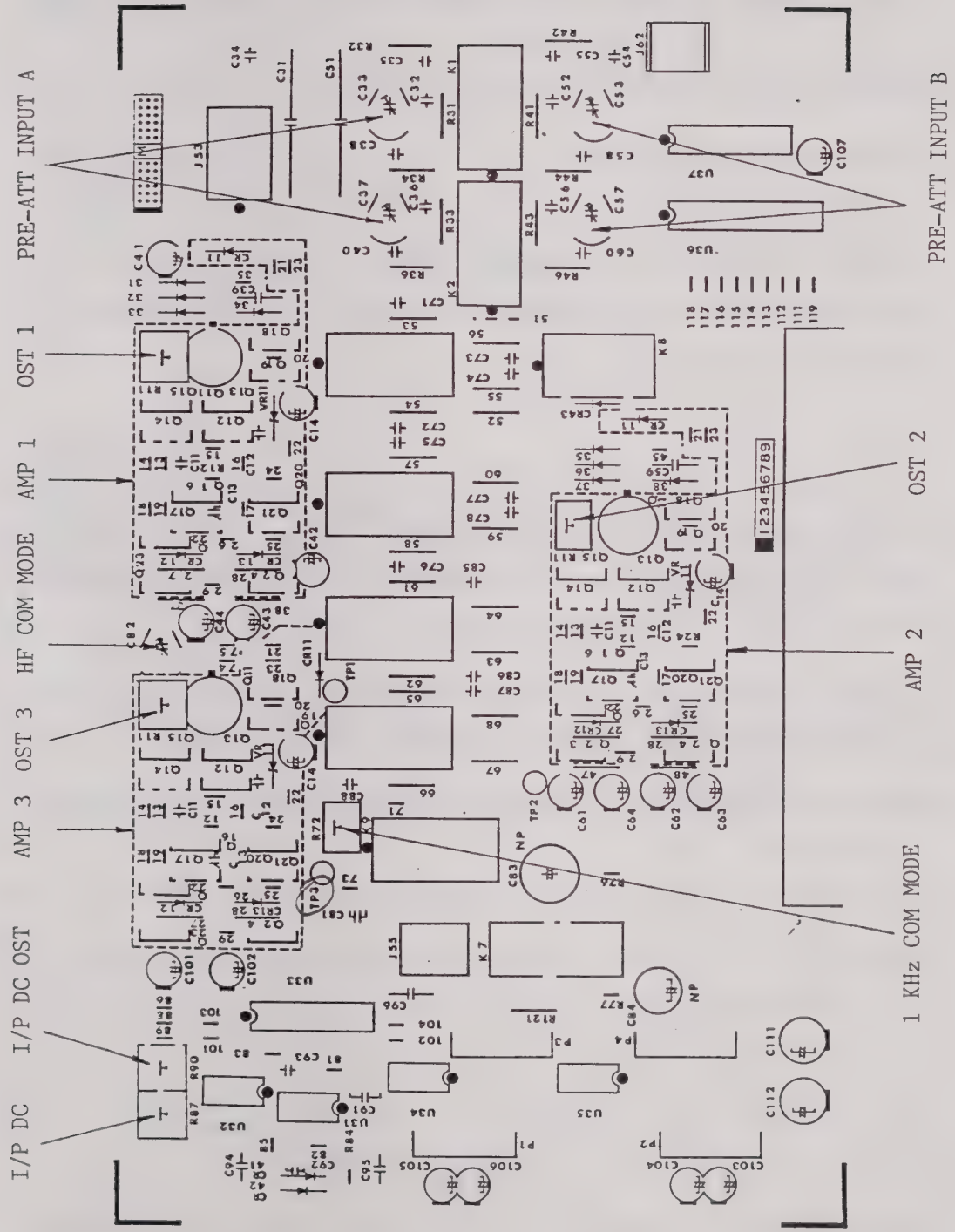


Figure 4-3 Adjustment controls on PREAMPLIFIER board

4.6.2 Common rejection ratio

The adjustment procedure for the common rejection ratio is as follows:

(1) Set the RANGE to 3.16 V fixed range, and the floating selector to FLT.

(2) Set the oscillator frequency to 1 kHz, and the OUTPUT to 4.0 dB (open terminal). Supply the signal simultaneously to A and B input terminals of the analyzer as shown in Figure 4-4.

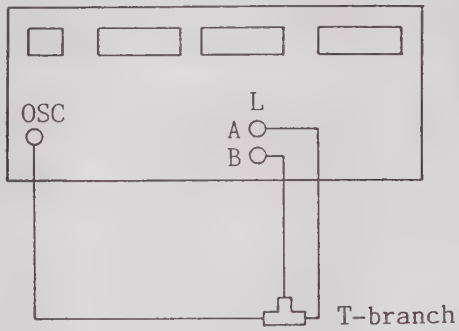


Figure 4-4 Adjustment setup

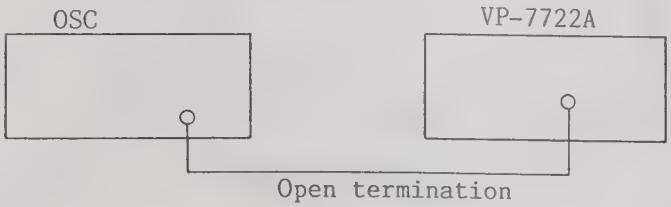
(3) Connect an oscilloscope to test point TP3. Adjust 1kHz COM MODE control R72 so that the 1 kHz signal component is rejected and the waveform is the smallest.

(4) Connect a 500 kHz low distortion RC oscillator, whose output is set to 10 dB, instead of the internal oscillator of the VP-7722P.

(5) Adjust HF COM MODE C82 so that the waveform measured at test point TP3 is the smallest.

4.6.3 A input preattenuator

The setup for the A input preattenuator adjustment is as follows:



The adjustment procedure for the A input preattenuator is as follows:

(1) Set the floating selector to NON FLT. Connect an oscilloscope to test point TP1.

(2) Connect a RC oscillator to the A input terminal and set its output to 14.0 dB (10 Vrms).

(3) Adjust controls for flatness of waveform observed on the oscilloscope according to steps shown in Table 4-7.

Front panel settings:

MODE: DISTN

INPUT SELECTOR: L only (R only for adjustment in Section 4.6)

RC OSC FREQUENCY: 1 kHz through 500 kHz

RANGE: 100% fixed range

Table 4-7 A input preattenuator adjustment

Adjustment step	Input range	Test point	Adjustment control and method	Remarks
Step 1	10V fixed range	TP1	Adjust 10 dB ATT control (C37) for an optimum flatness.	Adjust 100 kHz to 100% with 1 kHz, 100% reference. Check flatness at 500 kHz is within ±10%.
Step 2	31.6V fixed range	TP1	Adjust 20 dB ATT control (C33) for an optimum flatness.	Same as above
Step 3	100V fixed range	TP1	Check for abnormal flatness.	Check that flatness between 100 kHz and 500 kHz is within ±15% at 1 kHz, 100% reference.

Note: Accurately calibrate the oscilloscope probe before the adjustment.

4.6.4 B input preattenuator

The setup for the B input preattenuator adjustment is as follows:

The adjustment procedure for the A input preattenuator is as follows:

(1) Set the floating selector to NON FLT. Connect an oscilloscope to test point TP3.

(2) Simultaneously supply signals from the RC oscillator to A and B input terminals. (Connection is the same as that in Figure 4-4 of 4.6.2 (2).)

(3) Adjust controls shown in Table 4-8 for the minimum common rejection waveform observed on the oscilloscope which is set to the 5 mV range.

Conditions:

RC oscillator frequency: 1 kHz through 500 kHz

others: Same as 4.6.3

Table 4-8 B input attenuator adjustment

Adjustment step	Input range	Test point	Adjustment control and method	Remarks
Step 1	10V fixed range	TP3	Adjust 10 dB ATT control (C57) for maximum common rejection ratio.	Set to 1 kHz and adjust for minimum waveform deflection at 500 kHz.
Step 2	31.6V fixed range	TP3	Adjust 20 dB ATT control (C53) for maximum common rejection ratio.	Same as above
Step 3	100V fixed range	TP3	Check for abnormal common rejection ratio.	Variable between 1 kHz and 500 kHz, 100 mVp-p or less.

Note: Make sure the shield plate is installed before preceding to the succeeding procedures.

4.6.5 Input level display

The adjustment and check procedures are as follows:

(1) Set the floating selector to NON FLT. Connect an AC voltage calibrator to the A input terminal.

(2) Set the MODE to DISTN, the input range to 3.16 fixed range, and the measurement range to the 100% fixed range.

(3) Set the voltage calibrator output to 30 mV. Adjust I/P DC OST control R90 for a display reading of 0.030 V on the LEVEL display on the central area of the VP-7722P.

(4) Change the voltage calibrator output to 3 V. Adjust I/P DC control R87 for a display reading of 3.000 V.

(5) Verify that Steps (3) and (4) are well adjusted.

(6) Check that each range of the input level is correct when voltages listed in Table 4-9 are supplied from the voltage calibrator.

Table 4-9 Specifications for input level display

Input level range	Voltage of AC voltage calibrator	Specifications
100 V (40 dB)	100 V 30 V	98 V to 102 V 28 V to 32 V
31.6 V (30 dB)	30 V 10 V	29.4 V to 30.6 V 9.4 V to 10.6 V
10 V (20 dB)	10 V 3 V	9.8 V to 10.2 V 2.8 V to 3.2 V
3.16 V (10 dB)	3 V 1 V	2.94 V to 3.06 V 0.94 V to 1.06 V
2.37 V (7.5 dB)	2.37 V	2.323 V to 2.417 V
1.78 V (5.0 dB)	1.78 V	1.745 V to 1.815 V
1.33 V (2.5 dB)	1.33 V	1.304 V to 1.356 V
1 V (0 dB)	1 V 0.3 V	0.98 V to 1.02 V 0.28 V to 0.32V
316 mV (-10 dB)	300 mV 100 mV	294 mV to 306 mV 94 mV to 106 mV
133 mV (-17.5 dB)	133 mV	130.34 mV to 135.26 mV

Note: Never connect a termination to the voltage calibrator. Otherwise, the instrument may be burnt.

4.7 PREAMPLIFIER (R CHANNEL) A7

The composition of the PREAMPLIFIER (R) board is identical with the PREAMPLIFIER (L) board. The adjustment procedures are identical, except the input selector is set to "R only."

4.8 1ST NOTCH BOARD A8

The offset adjustment of the 2nd notch amplifier and the adjustment for the fundamental wave rejection must be performed before adjustments of the 1st NOTCH board.

4.8.1 Offset adjustment of 2nd notch amplifier

The adjustment procedure is as follows:

(1) Disconnect the jumper at the the 2nd notch input stage shown in Figure 4-5 to shortcircuit the input.

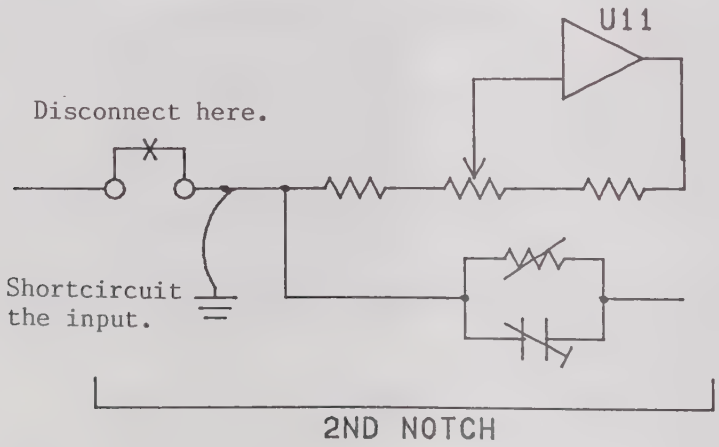


Figure 4-5 2nd notch input circuit

(2) Set the input range to 133 mV, the RANGE to 0.1%, and the MODE to DISTN.

(3) Adjust REJ OST control R61 so that the DC component of signal measured at the test point connected to the U19 output is 0 V.

4.8.2 Fundamental wave rejection of 2nd notch stage

The adjustment procedure for the fundamental wave rejection of 2nd notch stage is as follows:

(1) Remove the wiring for the input shortcircuit described in 4.8.1 (1). Connect input stages of 1st and 2nd notch stages as shown in Figure 4-6.

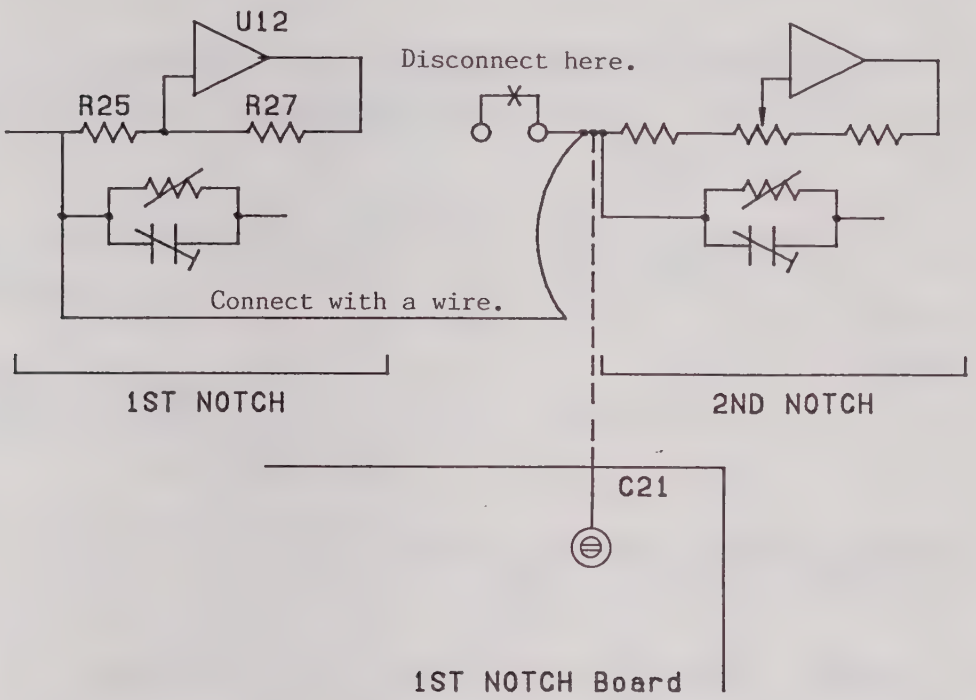


Figure 4-6 Connection for fundamental wave rejection adjustment

(2) Front panel settings:

OSCILLATOR FREQUENCY:	1 kHz
OSCILLATOR OUTPUT:	10 dB (600Ω load)
MODE:	DISTN
INPUT, MEASUREMENT RANGE:	3.16 V, 100% fixed range
INPUT SELECTOR:	L only
FLOATING SELECTOR:	NON FLT
NOTCH HOLD:	1 kHz
FAST/SLOW:	SLOW

(3) Connect the OSC OUTPUT terminal to the L-channel A input of the measurement section.

(4) Connect an oscilloscope to test point TP1 connected to the U19 output on the 2nd NOTCH board.

(5) Adjust REJ ADJ control R12 so that the amplitude of waveform measured at TP1 is the smallest.

Note: If the oscillator frequency deviates more than 1% from 100 kHz, use an other RC oscillator. Measure the frequency accuracy with a frequency counter.

(6) Set the oscillator frequency to 100 kHz ±1%, and the NOTCH HOLD to 100 kHz. Adjust trimmers C11 and C13 for the minimum amplitude in the same way as Step (5).

(7) Make sure to return the jumper wire to the original condition after the adjustments.

4.8.3 Offset adjustment of auto tuning circuit

The adjustment procedure is as follows:

(1) Set the MODE to DISTN, the input range to 3.16 V fixed range, and the measurement range to 0.01% fixed range. Set the FAST/SLOW to SLOW.

(2) Measure the frequency of an oscilloscope with a frequency counter and set it to nearest to 1 kHz.

(3) Connect the oscilloscope to pin 7 of U20. Adjust OFFSET control OST2 R164 of the auto tuning circuit for a DC component of 0 V. See Figure 4-7 for the position of the OFFSET control.

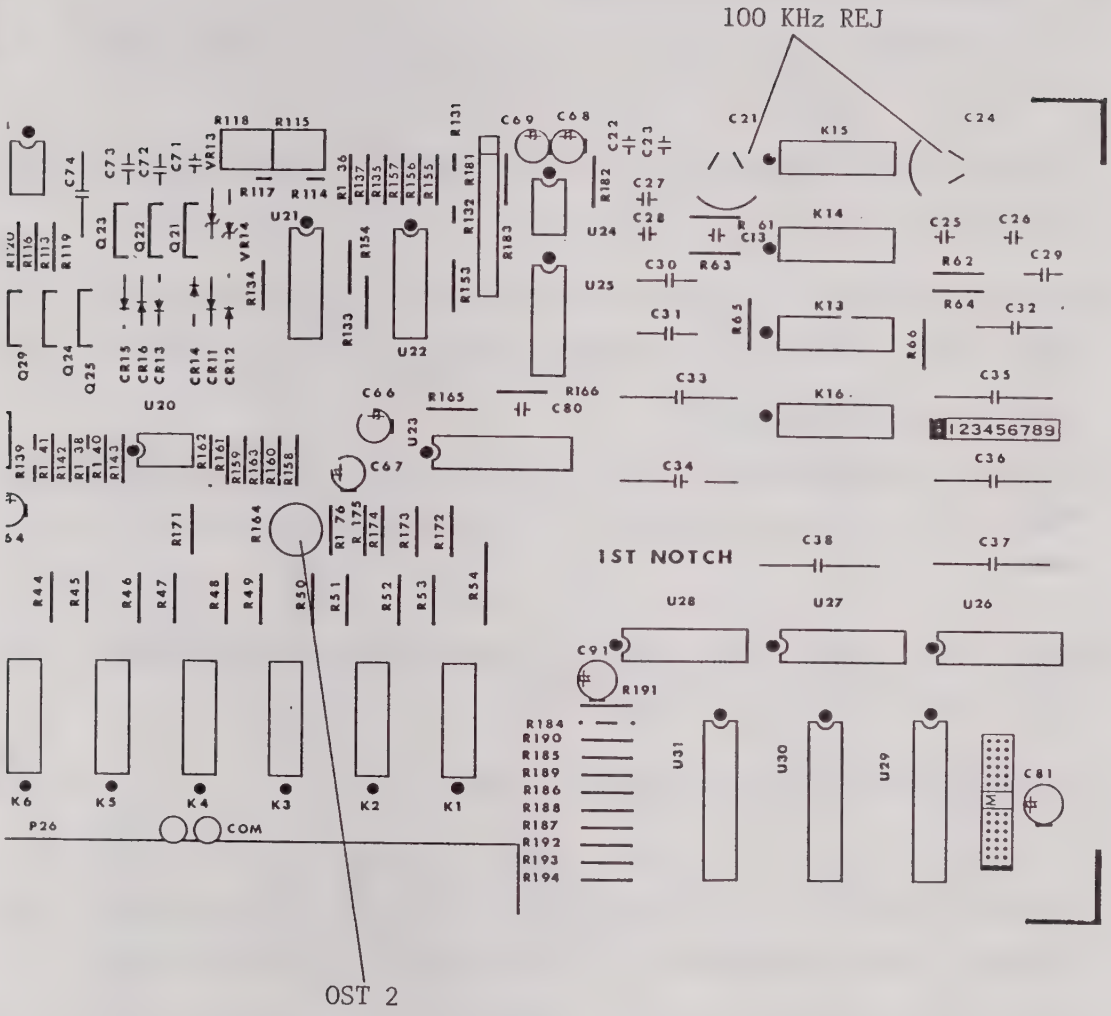


Figure 4-7 Auto tuning circuit on 1st NOTCH board

4.8.4 Offset of 1st notch amplifier

(1) Set the MODE to LEVEL and the measurement range to 0.316 mV fixed range. Terminate the A terminal of the L input with a 600Ω termination.

(2) Adjust OFFSET control R75 of the 1st notch amplifier so that the DC component appears at the output of 2nd notch amplifier U19 is 0 V.

(3) Recheck the characteristics of 4.8.3. If needed, repeat the adjustment.

4.8.5 Fundamental wave rejection circuit

The adjustment procedure for the fundamental wave rejection circuit as the preparation for the fine adjustments described latter is as follows:

(1) Set the MODE to DISTN, the input range to 3.16 V fixed range, and the measurement range to 0.01% fixed range. Set FAST/SLOW to SLOW.

(2) Set the frequency of the oscillator to 10 Hz and the output to 10 dB (600Ω load). Supply the oscillator output to the input terminal of the VP-7722P measurement section. The NOTCH HOLD may not be used.

(3) Connect an oscilloscope to the test point under the K10 relay on the 1st NOTCH board shown in Figure 4-8. Set the oscilloscope to the AC coupling.

(4) Adjust REJ3 control R82 so that the remainders of the fundamental wave and harmonic component are the smallest.

(5) Change the oscillator frequency to 1 kHz.

(6) Alternately adjust 1 kHz REJ REJ1 and REJ2 controls R115 and R118 so that the remainders of the fundamental wave and harmonic component are the smallest. Set the oscilloscope to the AC coupling and 10 mV range.

(7) Repeat Steps (4) through (6) a few times for an optimum conditions.

(8) Recheck the characteristics of 4.8.3. If needed, repeat the adjustments.

Note: Repeat the adjustment of 4.8.4 after all adjustments described hereafter as the fine adjustment in the harmonic measurement mode.

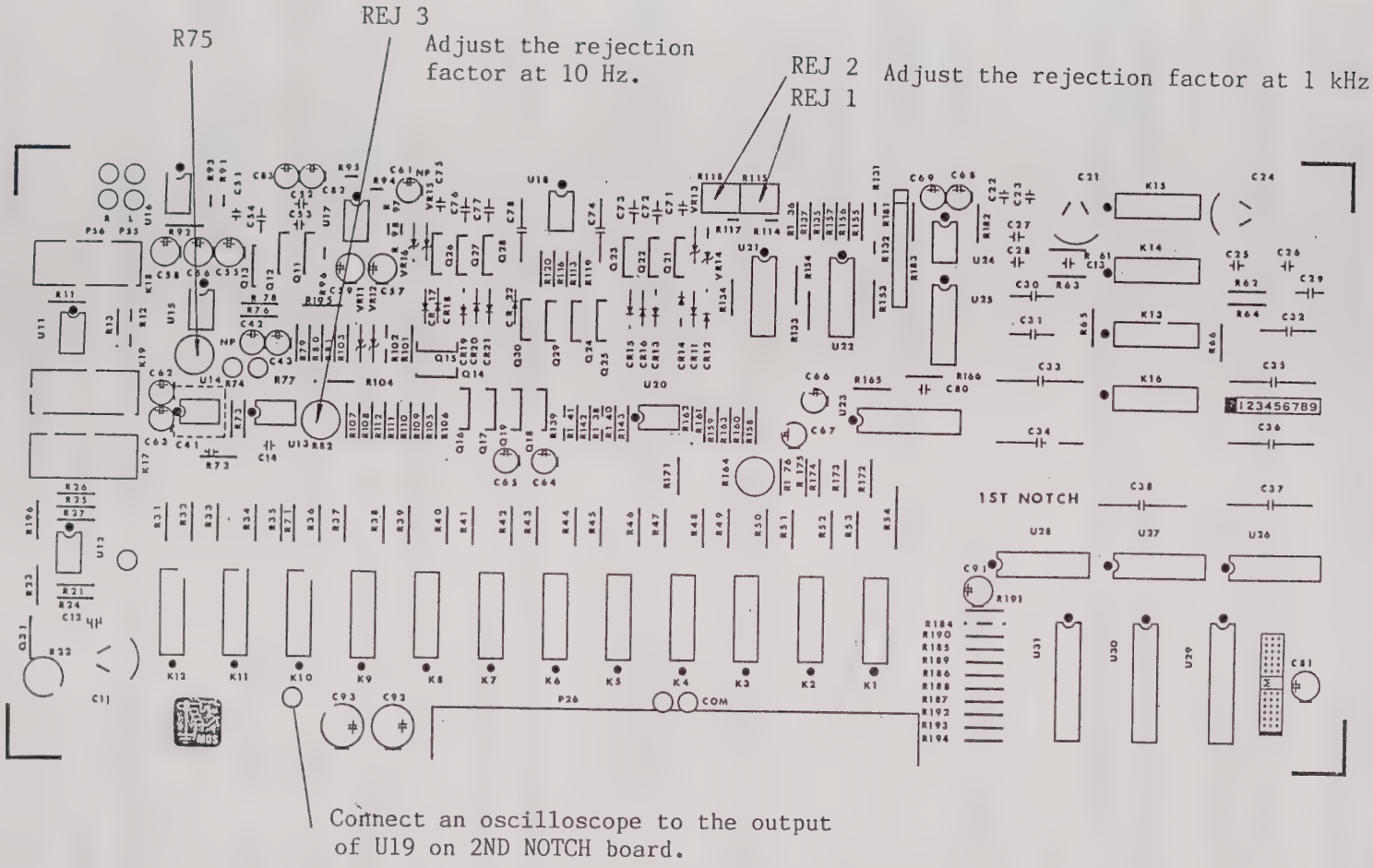

R75
REJ 3
Adjust the rejection factor at 10 Hz.
REJ 2
REJ 1
Adjust the rejection factor at 1 kHz.
1ST NOTCH
Connect an oscilloscope to the output of U19 on 2ND NOTCH board.

Figure 4-8 Adjustment controls on 1ST NOTCH board

4.8.6 80 kHz fundamental wave rejection

The adjustment and check procedures are as follows:

(1) Set the MODE to DISTN, the input range to the 3.16 V fixed range, and the measurement range to 0.01% fixed range.

(2) Set the oscillator output to 80 kHz and the output to 10 dB (600Ω load). Adjust the MODIFY control on the front panel for a frequency nearest to 80 kHz.

(3) Set the NOTCH HOLD to 80 kHz.

(4) Connect an oscilloscope to output pins 1 and 7 of U18 using two probes to measure the DC currents simultaneously in the CHOP mode.

(5) Adjust trimmer C21 so that the output of pin 7 is 0 V, then trimmer C24 so that the output of pin 1 is 0 V.

(6) Turn the MODIFY control for a oscillator frequency of slightly higher than 80 kHz +1.3% (81.04 kHz).

(7) Adjust green trimmer C21 so that the voltage is slightly toward the minus side (saturated at ±10 V).

(8) Check the auto tuning width of the following frequencies:

(a) Approx. 1% of 40 kHz upper limit : 40.4 kHz: Notch-hold at 40 kHz
(b) Approx -1% of 37.5 kHz lower limit: 37.125 kHz: Notch-hold at 37.5 kHz
(c) Approx. -1% of 20 kHz lower limit: 19.8 kHz: Notch-hold at 20 kHz
(d) Approx. 0.7% to 1% of 10 Hz upper limit: 10.07 Hz to 10.1 Hz: Notch-hold at 10 Hz

(9) Set the front panel to:

OSC FREQUENCY:	16 kHz
UNIT:	dB
INPUT RANGE:	+10 dB fixed range
MEASUREMENT RANGE:	-20 dB fixed range
NOTCH HOLD:	16 kHz

Check that the measured value is -46 dB or less with the above settings.

(10) Reset the NOTCH HOLD.

Verify that the auto tuning functions when the oscillator frequency is changed between 16 kHz and 110 kHz.

Note: Measure the output pins 1 and 7 of U18 and check if DC voltages are not satilated at ±10 V.

Change the frequency with 0.1 kHz steps for frequencies between 16 kHz and 20 kHz, and with 1 kHz steps for frequencies between 20 kHz and 110 kHz.

Remarks: If the variable area of trimmer C21 is narrow and the adjustment is impossible, add ECCF1H of approximately 220 KC parallel to C22 on the reverse side of the printed circuit board.

4.9 2ND NOTCH BOARD A9

4.9.1 HPF offset

The adjustment procedure for the high-pass filter offset is as follows:

(1) Set the MODE to DISTN and terminate the input terminal with a 600Ω termination. Set the input range to 3.16 fixed range and the measurement range to 0.01% fixed range.

(2) Connect an oscilloscope to pin 1 of U22.

(3) Adjust PSOPHO control R80 for a 0V offset.

4.9.2 PSOPHO offset

The adjustment procedure is as follows:

(1) Set the PSOPHO A to on.

(2) Connect an oscilloscope to pin 1 of U22. Adjust WTD OST control R109 for a oV offset.

(3) Return the PSOPHO A to off.

4.9.3 Offset amplifier 2

The adjustment procedure for the offset amplifier 2 is as follows:

(1) Connect an oscilloscope to pin 1 of U25.

(2) Fix the measurement range to 0.001%.

(3) Adjust AMP OST1 control R137 for a 0V offset.

(4) Check that the offset is the minimum when the measurement range is sequentially changed from 100% to 0.001%.

Remarks: The offset must be 150 mV or less in all measurement ranges. In general, the offset is the largest at the 0.1% range. Read the offset at the center of waveforms for 0.01% and 0.001% ranges.

4.9.4 Gain and offset of average response

The adjustment and check procedures are as follows:

(1) Set the response to the RMS response and the FAST/SLOW to SLOW.

(2) Supply a 10 mV calibration signal to the input terminal.

(3) Adjust RMS OST control R164 for a display reading of 0.010 V.

(4) Supply a 3.000 V calibration signal to the input terminal.

(5) Adjust RMS ADJ control R161 for a display reading of 3.000 V.

(6) Repeat Steps (2) and (5) for optimum conditions.

(7) Check that the display readings at all ranges when calibration signals of all LEVEL measurement ranges are fed to the input terminal. (Specifications: ±2% of full scale)

4.9.5 PSOPHO gain

The adjustment procedure is as follows:

(1) Set the response to the AVE response.

(2) Supply an 1 kHz, approximately 3 V signal from the internal oscillator to the input terminal.

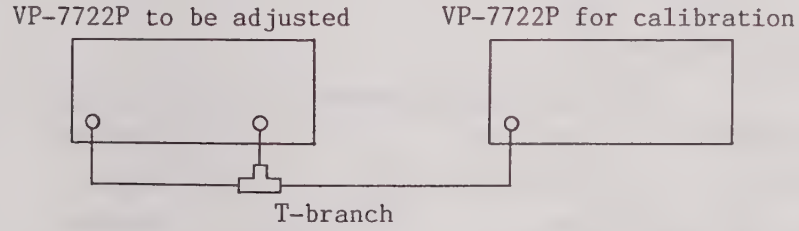
(3) Set the RELATIVE LEVEL to on. Set the PSOPHO A to on. Adjust WTD ADJ control R110 for a display reading of 0.00 dB.

4.10 1ST NOTCH BOARD A8

4.10.1 Deviation of 1 kHz 2nd harmonic

The adjustment procedure of the deviation of 1 kHz 2nd harmonic is as follows:

(1) The adjustment setup is:



Front panel settings:

	VP-7722P to be adjusted	VP-7722P for calibration
OSC FREQUENCY:	1 kHz	2 kHz
OSC OUTPUT:	10 dB	-10 dB
UNIT:	dB	Optional
MEASUREMENT MODE:	DISTN	Optional
INPUT RANGE:	10 dB fixed range	Optional
MEASUREMENT RANGE:	-20 dB fixed range	Optional

(2) Set the output of the calibration VP-7722P to off by pressing the AMPTD key, the - key three times, and the ENTRY key.

(3) Set the NOTCH HOLD of the VP-7722P to be adjusted to 1 kHz.

(4) Set the output of the calibration VP-7722P to -10 dB.

(5) Adjust variable resistor R22 so that the display reading of the VP-7722P to be adjusted is -20.45 dB ±0.05 dB (between -20.4 and -20.5).

4.10.2 Deviation of 100 kHz 2nd harmonic

The adjustment and check procedures are as follows:

(1) Adjustment setup is:

Front panel settings:

	VP-7722P to be adjusted	VP-7201P for calibration
OSC FREQUENCY:	100 kHz	200 kHz
OSC OUTPUT:	10 dB	-64 dB
UNIT:	dB	Optional
MEASUREMENT MODE:	DISTN	Optional
INPUT RANGE:	10 dB fixed range	Optional
MEASUREMENT RANGE:	-20 dB fixed range	Optional
NOTCH HOLD:	AUTO	

(2) Set the oscillator frequency of the VP-7722P to be adjusted to a frequency nearest to 100 kHz and notch-hold that frequency.

(3) Increase the output of the calibration VP-7201P by +60 dB. Set the frequency of that VP-7722P to 200 kHz.

(4) Adjust trimmer C11 for a display reading of the VP-7722P to be adjusted of -20.00 dB.

(5) Check that the display reads as follows when the frequency of the VP-7201P is changed to 300 kHz and 500 kHz:

300 kHz: -20.00 dB ±1 dB

500 kHz: -20.00 dB ±6 dB

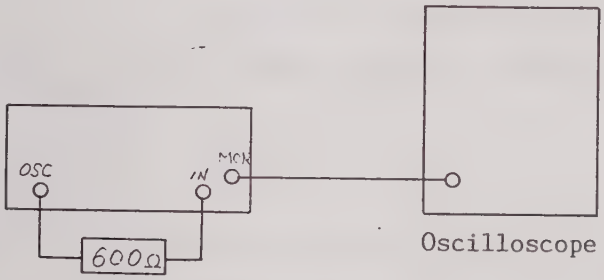
Note 1: The output display of the VP-7201P is set to open terminal output unlike the VP-7722P. If a 600Ω termination is connected when the output display is -4.0 dB, an output of -10 dB can be obtained.

Note 2: The deviation of 100 kHz harmonic is slightly influenced by the shield plate. A value of -20.00 may be obtained after the shield plate is installed if the adjustment of Step (4) is set to approximately -19.9 dB.

4.10.3 Fundamental wave rejection circuit

The adjustment and check procedures are as follows:

(1) The adjust setup is:



Front panel settings:

OSC FREQUENCY:	1.6 kHz
OSC OUTPUT:	10 dB
INPUT RANGE:	10 dB
MEASUREMENT RANGE:	-100 dB
MEASUREMENT MODE:	THD1
NOTCH HOLD:	1.6 kHz

(2) Observe the waveform displayed on the monitor oscilloscope. Adjust REJ3 control R82 so that the remainder of fundamental wave and the measured value in the THD1 mode are the smallest.

(3) Change the oscillator frequency to 1.5 kHz and the notch hold to 1.5 kHz. Alternately adjust REJ1 and REJ2 controls R115 and R118 so that the remainder of fundamental wave and the measured value in the THD1 mode are the smallest.

(4) Set the oscillator frequency and the notch hold to 1.6 kHz. Check that the characteristics adjusted in Step (2) are satisfactory.

(5) Set the oscilloscope frequency to 1 kHz and reset the notch hold. Set the floating switch to FLT. Verify that measured values are proper when the input terminals are sequentially changed to L-channel A, L-channel B, R-channel A and R-channel B. The values should fall between -115 dB and -120 dB.

4.11 A/D CONVERTER BOARD A11

The adjustment procedure for the A/D CONVERTER board is as follows:

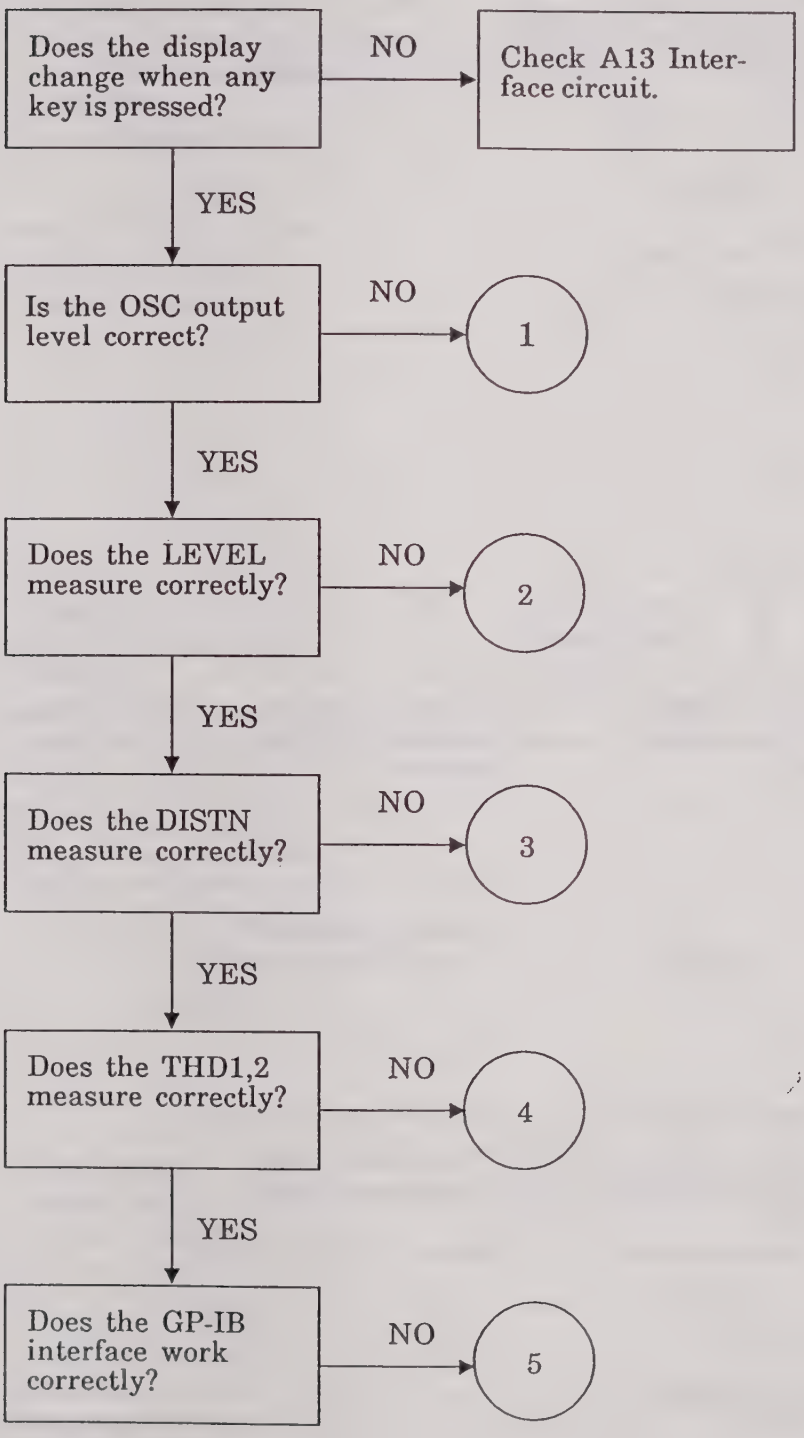
(1) Connect a voltage calibrator to the input terminal as shown on the right. Set the voltage calibrator output to 3.162 V.

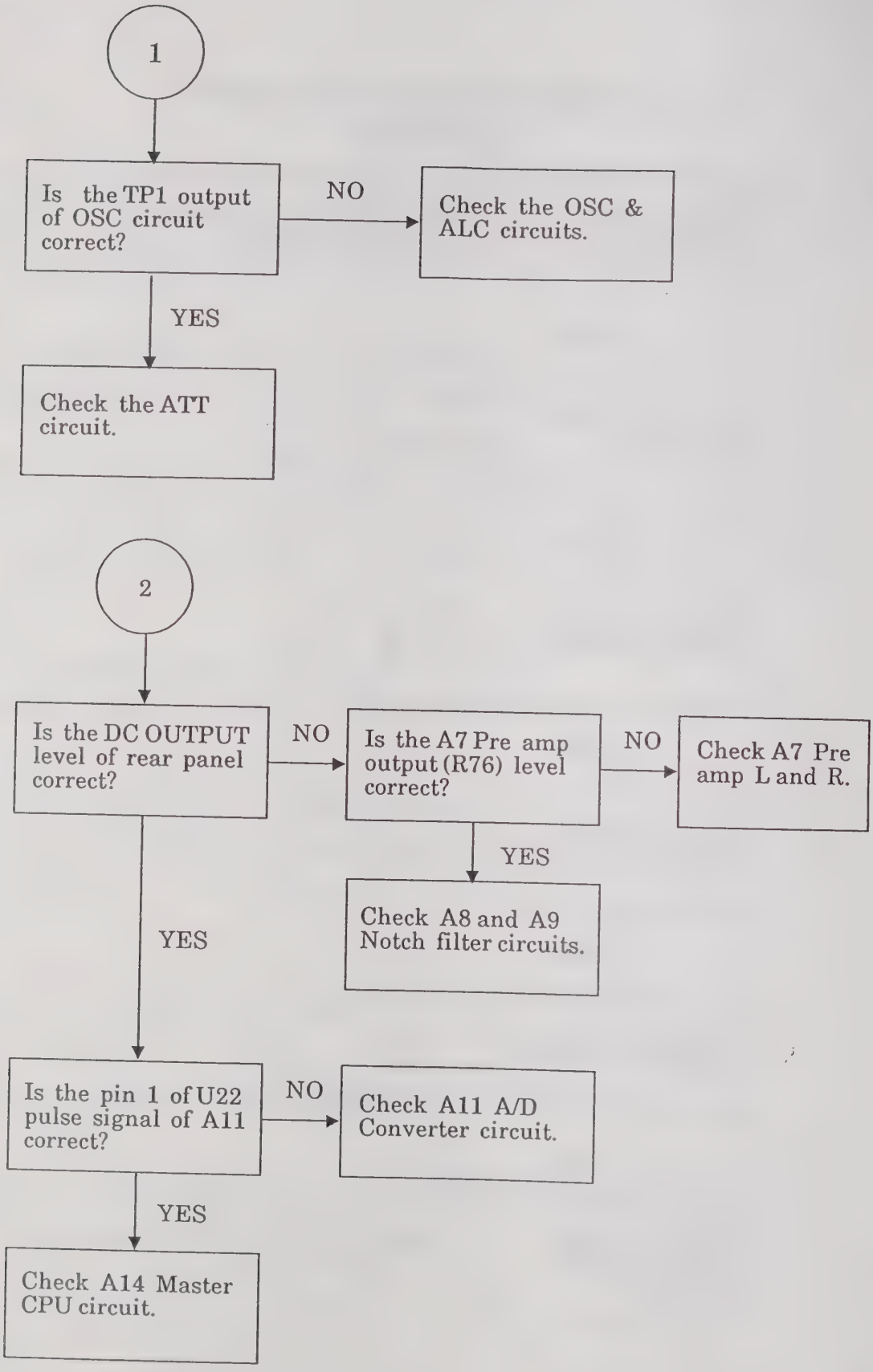
(2) Measure the level in the LEVEL mode at the 3.16 fixed range. Take note of the measured result.

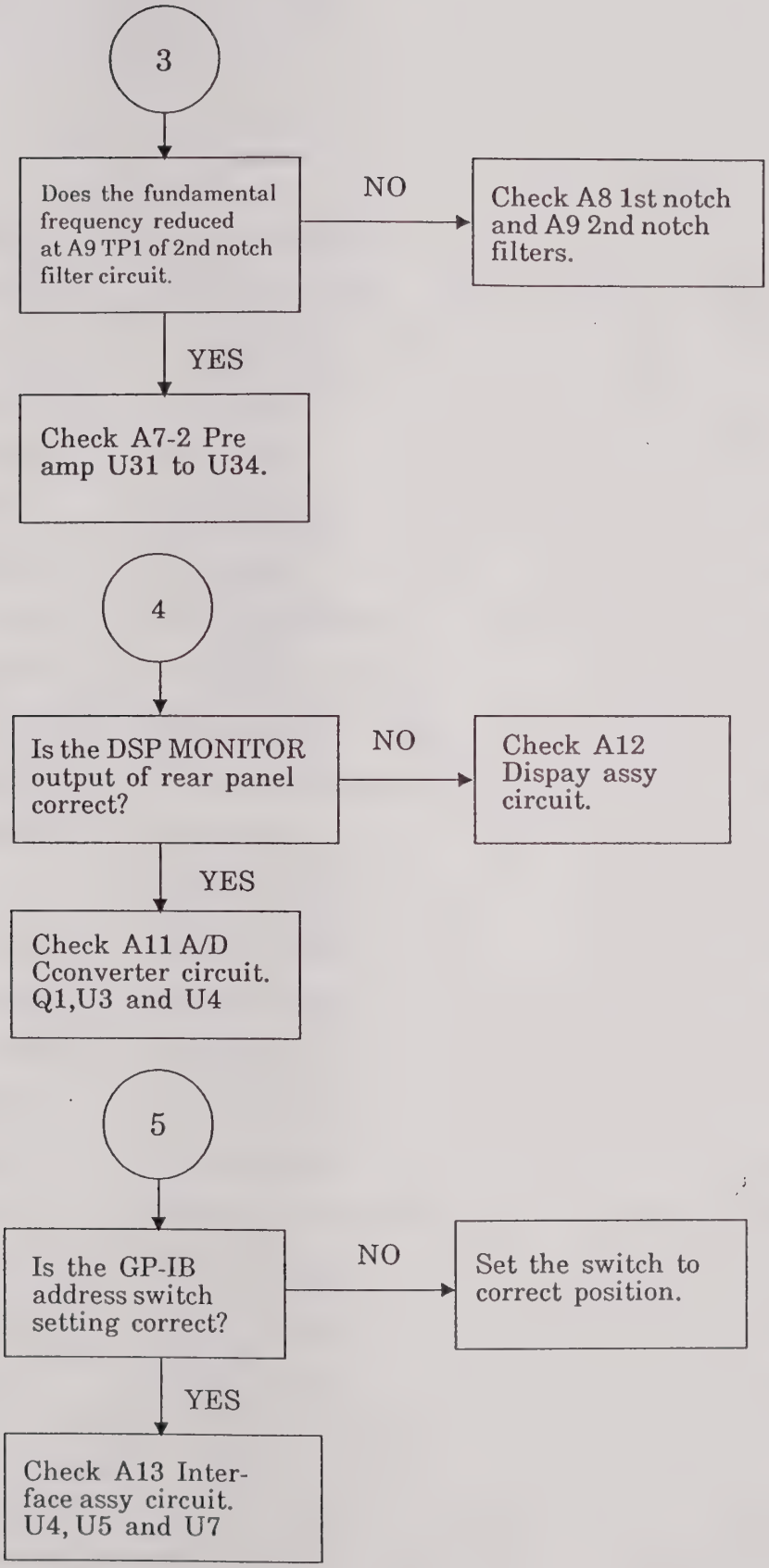
(3) Set the VP-7722P to the AVERAGE mode and 3.16 fixed range.

(4) Adjust FS ADJ control R4 so that the measured value is approximately the same with that in Step (2). Since identical value can hardly obtained, an approximate value is acceptable.

4.12 TROUBLESHOOTING FLOW CHART
for VP-7722A




1
Is the TP1 output of OSC circuit correct?
NO
Check the OSC & ALC circuits.
YES
Check the ATT circuit.
2
Is the DC OUTPUT level of rear panel correct?
NO
Is the A7 Pre amp output (R76) level correct?
NO
Check A7 Pre amp L and R.
YES
Check A8 and A9 Notch filter circuits.
YES
Is the pin 1 of U22 pulse signal of A11 correct?
NO
Check A11 A/D Converter circuit.
YES
Check A14 Master CPU circuit.


3
Does the fundamental frequency reduced at A9 TP1 of 2nd notch filter circuit.
NO
Check A8 1st notch and A9 2nd notch filters.
YES
Check A7-2 Pre amp U31 to U34.
4
Is the DSP MONITOR output of rear panel correct?
NO
Check A12 Dispay assy circuit.
YES
Check A11 A/D Cconverter circuit. Q1,U3 and U4
5
Is the GP-IB address switch setting correct?
NO
Set the switch to correct position.
YES
Check A13 Inter-face assy circuit. U4, U5 and U7

PARTS LIST

.	4G205690	P7722A TRANSFORMER	5-2
.	4G205691	P7722A ANALOG MPX	5-3
.	4G205692	P7722A POWER SUPPLY	5-5
.	4G205693-1	P7722A ATT	5-9
.	4G205694-1	P7722A OSC	5-14
.	4G205695	P7722A PRE-AMP	5-20
.	4G205696	P7722A AMP	5-26
.	4G205697-1	P7722A 1ST NOTCH	5-27
.	4G205698-1	P7722A 2ND NOTCH	5-34
.	4G205699	P7722A DIGITAL MOTHER	5-40
.	4G205700-1	P7722A A/D CONVERTER	5-44
.	4G205701-1	P7722A DSP	5-46
.	4G205702-1	P7722A INTERFACE	5-49
.	4G205703-1	P7722A MASTER	5-52
.	4G205704-1	P7722A COUNTER	5-56
.	4G205705-1	P7722A MAIN PANEL	5-59
.	4G205706-1	P7722A SUB PANEL	5-65
.	4G205707	P7722A REMOTE	5-68
.	4G206172	P7722P02 PANEL&CHASSIS	5-69
.	4G304307	P7722A CABINET	5-71
.	4G304308	P7722A MECHA	5-72
.	4G304309	KP-830 PACKAGE	5-73

P7722A TRANSFORMER DWG NO 4G205690

REF NO	QTY	PARTS NO	DESCRIPTION	
C 1	1	ECKDKS472ZV	C:FXD CER HI-K	4700PF +80.-20% 400V
C 2	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 3	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
CR 1	1	S30SC4F	DIODE:SCHOTTKY	30A 300V
E	22	60619-1	CONNECTOR	MATE-N-LOK CONTACT SOC
J 17	1	CM3	CONNECTOR	PWR JACK 3P
MP 27	1	4G617086-0AB	P5512A PLATE:SLIDE SW	
P 71	1	1-480424-0	CONNECTOR	MATE-N-LOK 4P PLUG
P 72	1	1-480424-0	CONNECTOR	MATE-N-LOK 4P PLUG
P 73	1	1-480424-0	CONNECTOR	MATE-N-LOK 4P PLUG
P 74	1	1-480424-0	CONNECTOR	MATE-N-LOK 4P PLUG
P 75	1	1-480270-0	CONNECTOR	MATE-N-LOK 6P PLUG
Q 1	1	2SB1055PQ	TSTR:SI PNP	PC=70W IC=6A
Q 2	1	2SB1055PQ	TSTR:SI PNP	PC=70W IC=6A
S 1	1	ESB70702V	PUSHB SW	DPST 3A-250V AC
S 2	1	ESD3921T	LEVER SW	
S 3	1	ESD3921T	LEVER SW	
T 1	1	3G430522	P7722A TRANSFORMER	
XF 1	1	FEU031.1653	FUSE HOLDER	SEV,VDE,SEMKO,UL AND CSA
XF 2	1	FEK031.1663	FUSE HOLDER CAP	5X20MM FUSE

P7722A ANALOG MPX DWG NO 4G205691

REF NO	QTY	PARTS NO	DESCRIPTION	
C 1	1	ECEA1AU101	C:FXD AL ELECT	100UF +-20% 10V
C 2	1	ECEA1VU101	C:FXD AL ELECT	100UF +-20% 35V
C 3	1	ECEA1VU101	C:FXD AL ELECT	100UF +-20% 35V
C 4	1	ECEA1VU101	C:FXD AL ELECT	100UF +-20% 35V
C 5	1	ECEA1VU101	C:FXD AL ELECT	100UF +-20% 35V
CR 1	1	MA150TA	DIODE:SI	100MA 35V
CR 2	1	MA150TA	DIODE:SI	100MA 35V
E 2	1	R76J3375	SUPPORT L-5.2MM	
E 3	1	R76J3375	SUPPORT L-5.2MM	
E 4	1	R76J3375	SUPPORT L-5.2MM	
E 5	1	R76J3375	SUPPORT L-5.2MM	
J 21	1	64S603304312	CONNECTOR:DIN 6033	64P SOCKET B-STYLE
J 22	1	64S603304312	CONNECTOR:DIN 6033	64P SOCKET B-STYLE
J 23	1	64S603304312	CONNECTOR:DIN 6033	64P SOCKET B-STYLE
J 24	1	64S603304312	CONNECTOR:DIN 6033	64P SOCKET B-STYLE
J 25	1	64S603304312	CONNECTOR:DIN 6033	64P SOCKET B-STYLE
J 26	1	64S603304312	CONNECTOR:DIN 6033	64P SOCKET B-STYLE
J 27	1	64S603304312	CONNECTOR:DIN 6033	64P SOCKET B-STYLE
J 28	1	2521050169M	CONNECTOR:EDGE	10P DOUBLE
J 31	1	SIEM30R-2	CONNECTOR:ZIFLOK	30P RIGHT ANGLE
J 32	1	EMCS0360	CONNECTOR:PIN	PLUG 3P
J 33	1	163680-1	CONNECTOR	CIS 3P 2.5PITCH
J 35	1	EMCS0360	CONNECTOR:PIN	PLUG 3P
J 37	1	163680-8	CONNECTOR	CIS 10P 2.5PITCH
J 57	1	163680-1	CONNECTOR	CIS 3P 2.5PITCH
J 58	1	163680-1	CONNECTOR	CIS 3P 2.5PITCH
R 3	1	EXBP84102K	R:NETWORK	1K OHM X4 10% 1/8W
R 4	1	EXBP84472M	R:NETWORK	4.7K OHM X4 20% 1/8W
R 5	1	EXBP84102K	R:NETWORK	1K OHM X4 10% 1/8W
R 6	1	EXBP84472M	R:NETWORK	4.7K OHM X4 20% 1/8W
R 7	1	EXBP84102K	R:NETWORK	1K OHM X4 10% 1/8W
R 8	1	EXBP84472M	R:NETWORK	4.7K OHM X4 20% 1/8W
R 10	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R 11	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R 12	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R 13	1	ERD2FCJ100P	R:FXD CARBON FUSE	10 OHM 5% 1/4W
R 14	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R 15	1	ERD2FCJ100P	R:FXD CARBON FUSE	10 OHM 5% 1/4W
R 16	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R 17	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R 18	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W

P7722A ANALOG MPX DWG NO 4G205691

REF NO	QTY	PARTS NO	DESCRIPTION	
RT 1	1	PS2401-4	PHOT COUPLER	80MA 40V 3U SEC
RT 2	1	PS2401-4	PHOT COUPLER	80MA 40V 3U SEC
RT 3	1	PS2401-4	PHOT COUPLER	80MA 40V 3U SEC
U 1	1	TC74HC138P	IC:C MOS	3-TO-8 LINE DECODER
U 2	1	TL604CP	IC:ANALOG SW	INPUT LEVEL +-10V MAX
U 3	1	TL604CP	IC:ANALOG SW	INPUT LEVEL +-10V MAX
U 4	1	TL604CP	IC:ANALOG SW	INPUT LEVEL +-10V MAX
U 5	1	HI1201-5	IC:C MOS	QUAD SPST ANALOG SWITCH
U 6	1	TL604CP	IC:ANALOG SW	INPUT LEVEL +-10V MAX
U 7	1	NJM082BD-A	IC:OP AMP	BI-FET DUAL
U 8	1	TL081CP	IC:OP AMP	BI-FET
U 9	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE

P7722A POWER SUPPLY DWG NO 4G205692

REF NO	QTY	PARTS NO	DESCRIPTION
C 11	1	ECET16R103SW	C:FXD AL ELECT 10000UF +30%-10% 16V
C 12	1	ECET16R103SW	C:FXD AL ELECT 10000UF +30%-10% 16V
C 13	1	ECET16R103SW	C:FXD AL ELECT 10000UF +30%-10% 16V
C 14	1	ECET16R103SW	C:FXD AL ELECT 10000UF +30%-10% 16V
C 15	1	ECEA1CU101	C:FXD AL ELECT 100UF +-20% 16V
C 16	1	ECEA1AU101	C:FXD AL ELECT 100UF +-20% 10V
C 17	1	ECEA1CU101	C:FXD AL ELECT 100UF +-20% 16V
C 18	1	ECEA1AU101	C:FXD AL ELECT 100UF +-20% 10V
C 21	1	ECKF1H104ZV	C:FXD CER HI-K 0.1UF +80%-20% 50V
C 22	1	ECKF1H104ZV	C:FXD CER HI-K 0.1UF +80%-20% 50V
C 23	1	ECEA1CU222	C:FXD AL ELECT 2200UF +-20% 16V
C 24	1	ECEA1CU100	C:FXD AL ELECT 10UF +-20% 16V
C 25	1	ECEA1AU101	C:FXD AL ELECT 100UF +-20% 10V
C 26	1	ECKF1H104ZV	C:FXD CER HI-K 0.1UF +80%-20% 50V
C 27	1	ECKF1H104ZV	C:FXD CER HI-K 0.1UF +80%-20% 50V
C 28	1	ECEA1VU102	C:FXD AL ELECT 1000UF +-20% 35V
C 31	1	ECKF1H104ZV	C:FXD CER HI-K 0.1UF +80%-20% 50V
C 32	1	ECKF1H104ZV	C:FXD CER HI-K 0.1UF +80%-20% 50V
C 33	1	ECKF1H104ZV	C:FXD CER HI-K 0.1UF +80%-20% 50V
C 34	1	ECKF1H104ZV	C:FXD CER HI-K 0.1UF +80%-20% 50V
C 35	1	ECET16R472SW	C:FXD AL ELECT 4700UF +30%-10% 16V
C 36	1	ECKF1H104ZV	C:FXD CER HI-K 0.1UF +80%-20% 50V
C 37	1	ECEA1AU101	C:FXD AL ELECT 100UF +-20% 10V
C 38	1	ECKF1H104ZV	C:FXD CER HI-K 0.1UF +80%-20% 50V
C 41	1	ECKF1H104ZV	C:FXD CER HI-K 0.1UF +80%-20% 50V
C 42	1	ECKF1H104ZV	C:FXD CER HI-K 0.1UF +80%-20% 50V
C 43	1	ECKF1H104ZV	C:FXD CER HI-K 0.1UF +80%-20% 50V
C 44	1	ECKF1H104ZV	C:FXD CER HI-K 0.1UF +80%-20% 50V
C 45	1	ECEA1CU470	C:FXD AL ELECT 47UF +-20% 16V
C 46	1	ECKF1H104ZV	C:FXD CER HI-K 0.1UF +80%-20% 50V
C 47	1	ECEA1VU470	C:FXD AL ELECT 47UF +-20% 35V
C 48	1	ECEA1VU470	C:FXD AL ELECT 47UF +-20% 35V
C 51	1	ECET35R222SW	C:FXD AL ELECT 2200UF +30%-10% 35V
C 52	1	ECEA1CU100	C:FXD AL ELECT 10UF +-20% 16V
C 53	1	ECEA1CU100	C:FXD AL ELECT 10UF +-20% 16V
C 54	1	ECEA1VU101	C:FXD AL ELECT 100UF +-20% 35V
C 55	1	ECET35R222SW	C:FXD AL ELECT 2200UF +30%-10% 35V
C 56	1	ECEA1VU101	C:FXD AL ELECT 100UF +-20% 35V
C 61	1	ECKF1H104ZV	C:FXD CER HI-K 0.1UF +80%-20% 50V
C 62	1	ECKF1H104ZV	C:FXD CER HI-K 0.1UF +80%-20% 50V
C 63	1	ECKF1H104ZV	C:FXD CER HI-K 0.1UF +80%-20% 50V
C 64	1	ECKF1H104ZV	C:FXD CER HI-K 0.1UF +80%-20% 50V

P7722A POWER SUPPLY DWG NO 4G205692

REF NO	QTY	PARTS NO	DESCRIPTION	
C 65	1	ECET35R222SW	C:FXD AL ELECT	2200UF +30%-10% 35V
C 66	1	ECEA1VU221	C:FXD AL ELECT	220UF +-20% 35V
C 67	1	ECET35R222SW	C:FXD AL ELECT	2200UF +30%-10% 35V
C 68	1	ECEA1VU221	C:FXD AL ELECT	220UF +-20% 35V
C 71	1	ECEA1CU100	C:FXD AL ELECT	10UF +-20% 16V
C 72	1	ECEA1CU100	C:FXD AL ELECT	10UF +-20% 16V
C 73	1	ECEA1VU101	C:FXD AL ELECT	100UF +-20% 35V
C 74	1	ECKF1H681KB	C:FXD CER HI-K	680PF +-10% 50V
C 75	1	ECEA1VU101	C:FXD AL ELECT	100UF +-20% 35V
CR 11	1	V06B	DIODE:PWR RECT	1.3A 600V
CR 12	1	V06B	DIODE:PWR RECT	1.3A 600V
CR 13	1	V06B	DIODE:PWR RECT	1.3A 600V
CR 14	1	V06B	DIODE:PWR RECT	1.3A 600V
CR 15	1	S4VB10F	DIODE:PWR RECT	4A 100V
CR 16	1	S4VB10F	DIODE:PWR RECT	4A 100V
CR 17	1	S2VB10F	DIODE:PWR RECT	2A 100V
E 2	1	5020	CARD PULLER	
E 3	1	5020	CARD PULLER	
F 13	1	IEC500MAT	FUSE : TIME LAG	500MA 250V 20MM
F 14	1	IEC500MAT	FUSE : TIME LAG	500MA 250V 20MM
F 15	1	IEC2.5AT	FUSE : TIME LAG	2.5A 250V 20MM
F 16	1	IEC800MAT	FUSE : TIME LAG	800MA 250V 20MM
F 17	1	IEC800MAT	FUSE : TIME LAG	800MA 250V 20MM
F 18	1	IEC315MAT	FUSE : TIME LAG	315MA 250V 20MM
F 19	1	IEC315MAT	FUSE : TIME LAG	315MA 250V 20MM
J 71	1	350211-1	CONNECTOR	PIN HEADER 4P
J 72	1	350211-1	CONNECTOR	PIN HEADER 4P
J 73	1	350211-1	CONNECTOR	PIN HEADER 4P
J 74	1	350211-1	CONNECTOR	PIN HEADER 4P
J 75	1	1-380999-0	CONNECTOR	PIN HEADER 6P
J 76	1	350212-1	CONNECTOR	PIN HEADER 8P
J 77	1	EMCS0360	CONNECTOR:PIN	PLUG 3P
MP 37	1	4G617643-0CB	P7722A HEAT SINK:POWER	
P 21	1	64P603304310	CONNECTOR:DIN 6033	64P PIN B-STYLE
Q 11	1	2SC1226A-QR	TSTR:SI NPN	PC:10W FT:150MHZ
Q 12	1	2SC828A-RS	TSTR:SI NPN	PC:250MW FT:220MHZ
Q 13	1	2SC828A-RS	TSTR:SI NPN	PC:250MW FT:220MHZ
Q 14	1	2SA699A-QR	TSTR:SI PNP	PC:10W FT:150MHZ

P7722A POWER SUPPLY DWG NO 4G205692

REF NO	QTY	PARTS NO	DESCRIPTION	
Q 15	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MHZ
Q 16	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MHZ
R 11	1	ERD25TJ330V	R:FXD CARBON	33 OHM 5% 1/4W
R 12	1	ERD25TJ330V	R:FXD CARBON	33 OHM 5% 1/4W
R 21	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 22	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 23	1	ERDS2TJ102T	R:FXD CARBON	1K OHM 5% 1/4W
R 24	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R 25	1	EROS2TKF9091	R:FXD MET FLM	9.09K OHM 1% 1/4W
R 26	1	EVMQ0GA01B13	R:VAR CERMET	1K OHM 20% 0.5W
R 27	1	EROS2TKF6191	R:FXD MET FLM	6.19K OHM 1% 1/4W
R 31	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 32	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 33	1	ERDS2TJ102T	R:FXD CARBON	1K OHM 5% 1/4W
R 34	1	EROS2TKF1502	R:FXD MET FLM	15.0K OHM 1% 1/4W
R 35	1	EROS2TKF1502	R:FXD MET FLM	15.0K OHM 1% 1/4W
R 36	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 37	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 41	1	ERD25TJ331V	R:FXD CARBON	330 OHM 5% 1/4W
R 42	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R 43	1	EROS2TKF9091	R:FXD MET FLM	9.09K OHM 1% 1/4W
R 44	1	EVMQ0GA01B13	R:VAR CERMET	1K OHM 20% 0.5W
R 45	1	EROS2TKF6191	R:FXD MET FLM	6.19K OHM 1% 1/4W
R 46	1	ERD25TJ331V	R:FXD CARBON	330 OHM 5% 1/4W
R 47	1	EROS2TKF1502	R:FXD MET FLM	15.0K OHM 1% 1/4W
R 48	1	EROS2TKF1502	R:FXD MET FLM	15.0K OHM 1% 1/4W
U 11	1	NJM2930-05B	IC:V RGLTR	+5V 5% 150MA
U 12	1	NJM2930-05B	IC:V RGLTR	+5V 5% 150MA
U 13	1	NJM7905A	IC:V RGLTR	-5V 1A
U 14	1	SI-3052V	IC:V RGLTR	+5V 2A
U 15	1	RC4558P	IC:OP AMP	DUAL
U 16	1	NJM78M24A	IC:V RGLTR	+24V 0.5A
U 17	1	NJM79M24A	IC:V RGLTR	-24V 0.5A
U 18	1	NJM78M12A	IC:V RGLTR	+12V 0.5A
U 19	1	NJM79M12A	IC:V RGLTR	-12V 0.5A
U 20	1	RC4558P	IC:OP AMP	DUAL
U 21	1	SI-3122V	IC:V RGLTR	+12V 2A
VR 11	1	RD6.2EB2	DIODE:ZENER	6.0V 500MW
VR 12	1	RD6.2EB2	DIODE:ZENER	6.0V 500MW
XF 13	1	75A007	FUSE CLIP	

P7722A POWER SUPPLY DWG NO 4G205692

REF NO	QTY	PARTS NO	DESCRIPTION
XF 14	1	75A007	FUSE CLIP
XF 15	1	75A007	FUSE CLIP
XF 16	1	75A007	FUSE CLIP
XF 17	1	75A007	FUSE CLIP
XF 18	1	75A007	FUSE CLIP
XF 19	1	75A007	FUSE CLIP
XF 23	1	75A007	FUSE CLIP
XF 24	1	75A007	FUSE CLIP
XF 25	1	75A007	FUSE CLIP
XF 26	1	75A007	FUSE CLIP
XF 27	1	75A007	FUSE CLIP
XF 28	1	75A007	FUSE CLIP
XF 29	1	75A007	FUSE CLIP

P7722A ATT DWG NO 4G205693-1

REF NO	QTY	PARTS NO	DESCRIPTION	
C 90	1	ECQP1102FZ	C:FXD FLM	1000PF 1% 100V
C 91	1	ECEA1CN100S	C:FXD AL ELECT	10UF +-20% 16V
C 92	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 93	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 94	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 95	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 96	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 97	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 100	1	ECQP1104FZ	C:FXD FLM	0.1UF 1% 100V
C 101	1	ECQP1102FZ	C:FXD FLM	1000PF 1% 100V
C 102	1	ECEA1HN010S	C:FXD AL ELECT	1UF +-20% 50V
C 103	1	ECEA1HU010	C:FXD AL ELECT	1UF +-20% 50V
C 104	1	ECEA1HU010	C:FXD AL ELECT	1UF +-20% 50V
C 105	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 106	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 107	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 108	1	ECEA1AU101	C:FXD AL ELECT	100UF +-20% 10V
C 111	1	ECEA1AU101	C:FXD AL ELECT	100UF +-20% 10V
C 112	1	ECEA1AU101	C:FXD AL ELECT	100UF +-20% 10V
C 113	1	ECQV1H105JZ	C:FXD FLM	1UF +-5% 50V
C 114	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 115	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 116	1	ECCD2H220KC	C:FXD CER TC	22PF +-10% 500V NPO
C 117	1	ECCD2H040DC	C:FXD CER TC	4PF +-0.5PF 500V NPO
C 118	1	ECQV1H104JZ	C:FXD FLM	0.1UF +-5% 50V
C 121	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 122	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 123	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 124	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 125	1	ECEA1AU101	C:FXD AL ELECT	100UF +-20% 10V
C 126	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
CR 15	1	MA150TA	DIODE:SI	100MA 35V
CR 16	1	MA150TA	DIODE:SI	100MA 35V
CR 21	1	MA150TA	DIODE:SI	100MA 35V
CR 22	1	MA150TA	DIODE:SI	100MA 35V
CR 23	1	MA150TA	DIODE:SI	100MA 35V
CR 24	1	MA150TA	DIODE:SI	100MA 35V
E 1	1	2G401494	P7722A ATT P.C.B	
E 12	1	5020	CARD PULLER	
E 13	1	5020	CARD PULLER	
E 14	1	TCP/D43BSB	RIVET NSC4-3	

P7722A ATT DWG NO 4G205693-1

REF NO	QTY	PARTS NO	DESCRIPTION	
J 51	1	163683-1	CONNECTOR:PIN	CIS 3P 2.5PITCH
J 52	1	EMCS0360L	CONNECTOR:PIN	3P ANGLE
J 61	1	170001-2	CONNECTOR	FAST-ON 187 TAB
K 1	1	AE5649	REED RELAY	5V 1A-20VDC 1PDT NR
K 17	1	AE5649	REED RELAY	5V 1A-20VDC 1PDT NR
K 18	1	AG232944	RELAY	5V 36MA DPDT DS
K 19	1	AG232944	RELAY	5V 36MA DPDT DS
K 20	1	AG232944	RELAY	5V 36MA DPDT DS
K 21	1	AG232944	RELAY	5V 36MA DPDT DS
K 22	1	AG232944	RELAY	5V 36MA DPDT DS
K 23	1	AG232944	RELAY	5V 36MA DPDT DS
K 24	1	AG232944	RELAY	5V 36MA DPDT DS
K 25	1	AG232944	RELAY	5V 36MA DPDT DS
K 26	1	AG232944	RELAY	5V 36MA DPDT DS
K 27	1	AG232944	RELAY	5V 36MA DPDT DS
K 28	1	AG232944	RELAY	5V 36MA DPDT DS
MP 41	1	4G644138-3AB	SPACER 3X20	
MP 42	1	4G644138-3AB	SPACER 3X20	
MP 43	1	4G644138-3AB	SPACER 3X20	
MP 44	1	4G644138-3AB	SPACER 3X20	
P 22	1	64P603304310	CONNECTOR:DIN 6033	64P PIN B-STYLE
Q 35	1	2SC828A-RS	TSTR:SI NPN	PC:250MW FT:220MHZ
Q 36	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MHZ
Q 37	1	2SC828A-RS	TSTR:SI NPN	PC:250MW FT:220MHZ
Q 38	1	2SC828A-RS	TSTR:SI NPN	PC:250MW FT:220MHZ
R 185	1	ERQS2TKF6041	R:FXD MET FLM	6.04K OHM 1% 1/4W
R 186	1	ERQS2TKF4021	R:FXD MET FLM	4.02K OHM 1% 1/4W
R 187	1	ERO25CKF1002	R:FXD MET FLM	10K OHM 1% 1/4W
R 188	1	ERQS2TKF2002	R:FXD MET FLM	20.0K OHM 1% 1/4W
R 189	1	ERQS2TKF4022	R:FXD MET FLM	40.2K OHM 1% 1/4W
R 190	1	ERQS2TKF8062	R:FXD MET FLM	80.6K OHM 1% 1/4W
R 191	1	ERO25CKF7871	R:FXD MET FLM	7.87K OHM 1% 1/4W
R 192	1	EXBP84103K	R:NETWORK	10K OHM X4 10% 1/8W
R 193	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 194	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R 195	1	EXBP84102K	R:NETWORK	1K OHM X4 10% 1/8W
R 196	1	ERO25CKF1002	R:FXD MET FLM	10K OHM 1% 1/4W
R 200	1	ERD25TJ682T	R:FXD CARBON	6.8K OHM 5% 1/4W
R 201	1	ERD25TJ822T	R:FXD CARBON	8.2K OHM 5% 1/4W
R 202	1	ERD25TJ822T	R:FXD CARBON	8.2K OHM 5% 1/4W

P7722A ATT DWG NO 4G205693-1

REF NO	QTY	PARTS NO	DESCRIPTION	
R 203	1	ERD25TJ682T	R:FXD CARBON	6.8K OHM 5% 1/4W
R 205	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 206	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 207	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 208	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 209	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 210	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 211	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 212	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 213	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 214	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 215	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 216	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 220	1	ERD25TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 221	1	EROS2TKF2673	R:FXD MET FLM	267K OHM 1% 1/4W
R 222	1	EROS2TKF5112	R:FXD MET FLM	51.1K OHM 1% 1/4W
R 223	1	EROS2TKF5112	R:FXD MET FLM	51.1K OHM 1% 1/4W
R 224	1	EROS2TKF2673	R:FXD MET FLM	267K OHM 1% 1/4W
R 225	1	ERD25TJ154T	R:FXD CARBON	150K OHM 5% 1/4W
R 226	1	ERD25TJ153T	R:FXD CARBON	15K OHM 5% 1/4W
R 227	1	ERD25TJ153T	R:FXD CARBON	15K OHM 5% 1/4W
R 228	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 229	1	ERD25TJ184T	R:FXD CARBON	180K OHM 5% 1/4W
R 230	1	ERD25TJ272T	R:FXD CARBON	2.7K OHM 5% 1/4W
R 231	1	ERD25TJ272T	R:FXD CARBON	2.7K OHM 5% 1/4W
R 232	1	ERD25TJ473T	R:FXD CARBON	47K OHM 5% 1/4W
R 233	1	ERD25TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 234	1	ERO25CKF1002	R:FXD MET FLM	10K OHM 1% 1/4W
R 235	1	EROS2TKF1821	R:FXD MET FLM	1.82K OHM 1% 1/4W
R 236	1	EVMQ1GA01B13	R:VAR CERMET	1K OHM 20%
R 250	1	CFM6000D	R:FXD MET FLM	600 OHM 0.5% 1/8W
R 251	1	ERN55CC1093	R:FXD MET FLM	109K OHM 0.25% 1/4W
R 252	1	ERN55CC6040	R:FXD MET FLM	604 OHM 0.25% 1/4W
R 253	1	ERN55CC6040	R:FXD MET FLM	604 OHM 0.25% 1/4W
R 254	1	ERN55CC5691	R:FXD MET FLM	5.69K OHM 0.25% 1/4W
R 255	1	ERN55CC6650	R:FXD MET FLM	665 OHM 0.25% 1/4W
R 256	1	ERN55CC6650	R:FXD MET FLM	665 OHM 0.25% 1/4W
R 257	1	ERO25CHD1241	R:FXD MET FLM	1.24K OHM 0.5% 1/4W
R 258	1	ERO25CHD9530	F:FXD MET FLM	953 OHM 0.5% 1/4W
R 259	1	ERO25CHD9530	F:FXD MET FLM	953 OHM 0.5% 1/4W
R 260	1	ERO25CHD4810	R:FXD MET FLM	481 OHM 0.5% 1/4W
R 261	1	ERO25CHD1691	R:FXD MET FLM	1.69K OHM 1% 1/4W

P7722A ATT DWG NO 4G205693-1

REF NO	QTY	PARTS NO	DESCRIPTION		
R 262	1	ERO25CHD1691	R:FXD MET FLM		1.69K OHM 1% 1/4W
R 263	1	ERO25CHD2260	R:FXD MET FLM		226 OHM 0.5% 1/4W
R 264	1	ERO25CHD3321	R:FXD MET FLM		3.32K OHM 0.5% 1/4W
R 265	1	ERO25CHD3321	R:FXD MET FLM		3.32K OHM 0.5% 1/4W
R 266	1	ERO25CHD1100	R:FXD MET FLM		110 OHM 0.5% 1/4W
R 267	1	ERO25CHD6491	R:FXD MET FLM		6.49K OHM 0.5% 1/4W
R 268	1	ERO25CHD6491	R:FXD MET FLM		6.49K OHM 0.5% 1/4W
R 269	1	EROS2TKF54R9	R:FXD MET FLM		54.9 OHM 1% 1/4W
R 270	1	EROS2TKF1302	R:FXD MET FLM		13K OHM 1% 1/4W
R 271	1	EROS2TKF1302	R:FXD MET FLM		13K OHM 1% 1/4W
R 272	1	ERO25CKF27R4	R:FXD MET FLM		27.4 OHM 1% 1/4W
R 273	1	EROS2TKF2612	R:FXD MET FLM		26.1K OHM 1% 1/4W
R 274	1	EROS2TKF2612	R:FXD MET FLM		26.1K OHM 1% 1/4W
R 275	1	EROS2TKF14R0	R:FXD MET FLM		14.0 OHM 1% 1/4W
R 276	1	EROS2TKF5232	R:FXD MET FLM		52.3K OHM 1% 1/4W
R 277	1	EROS2TKF5232	R:FXD MET FLM		52.3K OHM 1% 1/4W
R 278	1	EROS2TKF14R0	R:FXD MET FLM		14.0 OHM 1% 1/4W
R 279	1	EROS2TKF14R0	R:FXD MET FLM		14.0 OHM 1% 1/4W
R 280	1	EROS2TKF1053	R:FXD MET FLM		105K OHM 1% 1/4W
R 281	1	EROS2TKF1053	R:FXD MET FLM		105K OHM 1% 1/4W
R 282	1	CFM6000D	R:FXD MET FLM		600 OHM 0.5% 1/8W
R 285	1	ERQ2AJP200S	R:FXD MET FLM	FUSE	20 OHM 5% 2W
R 286	1	ERD25TJ105T	R:FXD CARBON		1M OHM 5% 1/4W
R 287	1	ERD25TJ472T	R:FXD CARBON		4.7K OHM 5% 1/4W
R 288	1	ERD25TJ334T	R:FXD CARBON		330K OHM 5% 1/4W
R 291	1	EROS2TKF8061	R:FXD MET FLM		8.06K OHM 1% 1/4W
R 292	1	EROS2TKF8061	R:FXD MET FLM		8.06K OHM 1% 1/4W
R 293	1	EROS2TKF2001	R:FXD MET FLM		2.00K OHM 1% 1/4W
R 294	1	EROS2TKF2001	R:FXD MET FLM		2.00K OHM 1% 1/4W
R 295	1	EROS2TKF1003	R:FXD MET FLM		100K OHM 1% 1/4W
R 296	1	EROS2TKF6043	R:FXD MET FLM		604K OHM 1% 1/4W
R 297	1	ERO25CKF1822	R:FXD MET FLM		18.2K OHM 1% 1/4W
R 298	1	EROS2TKF2492	R:FXD MET FLM		24.9K OHM 1% 1/4W
RT 1	1	PS2401-2	PHOT COUPLER		80MA 40V 3U SEC
RT 2	1	PS2401-4	PHOT COUPLER		80MA 40V 3U SEC
U 22	1	UPD4066C	IC:C MOS		QUAD BILATERAL SWITCH
U 23	1	NE5534AP	IC:OP AMP		LOW NOISE
U 26	1	TL191CN	IC:ANALOG SWITCHES		RDS=300 OHM MAX
U 27	1	NJM082BD-A	IC:OP AMP		BI-FET DUAL
U 28	1	NJM082BD-A	IC:OP AMP		BI-FET DUAL
U 30	1	TD62307P	IC:DRIVER		7LINE RELAY DRIVER

P7722A ATT DWG NO 4G205693-1

REF NO	QTY	PARTS NO	DESCRIPTION	
U 31	1	TD62307P	IC:DRIVER	7LINE RELAY DRIVER
U 32	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 33	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 34	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 35	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 36	1	CMOS4002BP	IC:C MOS	DUAL 4-INPUT NOR GATE
U 37	1	CMOS4071BP	IC:C MOS	QUAD 2-INPUT OR GATE
U 38	1	CMOS4528BP	IC:C MOS	DUAL MOHO MULTI
U 39	1	AN6912	IC:LINEAR	QUAD COMPARATOR
VR 11	1	RD5.6EB2	DIODE:ZENER	5.5V 500MW
VR 12	1	RD3.9EB2	DIODE:ZENER	3.7V 500MW
VR 13	1	RD3.9EB2	DIODE:ZENER	3.7V 500MW
VR 14	1	RD3.9EB2	DIODE:ZENER	3.7V 500MW
VR 15	1	RD3.9EB2	DIODE:ZENER	3.7V 500MW

P7722A OSC DWG NO 4G205694-1

REF NO	QTY	PARTS NO	DESCRIPTION	
C 1	1	NQP102A1803F	C:FXD FLM	0.18 UF 1% 100V
C 2	1	MS271H4304G	C:FXD FLM	4.3 UF 2% 50V
C 3	1	MS271H4704G	C:FXD FLM	4.7 UF 2% 50V
C 11	1	NQS51H3880D	C:FXD FLM	388 PF 0.5% 50V
C 12	1	NQP52E3601F	C:FXD FLM	3600 PF 1% 250V
C 13	1	NQP62A3602F	C:FXD FLM	0.036 UF 1% 100V
C 14	1	NQP102A1803F	C:FXD FLM	0.18 UF 1% 100V
C 15	1	NQS61H1002D	C:FXD FLM	0.01 UF 0.5% 50V
C 16	1	ECQP1433FZ	C:FXD FLM	0.043UF 1% 100V
C 17	1	ECQP1473FZ	C:FXD FLM	0.047UF 1% 100V
C 18	1	ECQP1434FZ	C:FXD FLM	0.43UF 1% 100V
C 19	1	ECQP1474FZ	C:FXD FLM	0.47UF 1% 100V
C 20	1	ECCF1H151KC	C:FXD CER TC	150PF +-10% 50V NPO
C 21	1	ECCF1H050DC	C:FXD CER TC	5PF +-0.5PF 50V NPO
C 22	1	ECCF1H050DC	C:FXD CER TC	5PF +-0.5PF 50V NPO
C 23	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 24	1	ECEA1VU100	C:FXD AL ELECT	10UF +-20% 35V
C 25	1	ECEA1VU101	C:FXD AL ELECT	100UF +-20% 35V
C 26	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 27	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 28	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 29	1	ECEA1VU100	C:FXD AL ELECT	10UF +-20% 35V
C 30	1	ECEA1VU101	C:FXD AL ELECT	100UF +-20% 35V
C 31	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 50	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 51	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 52	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 53	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 54	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 58	1	ECEA1CU100	C:FXD AL ELECT	10UF +-20% 16V
C 59	1	ECQP1122FZ	C:FXD FLM	1200PF 1% 100V
C 61	1	ECQP1302FZ	C:FXD FLM	3000PF 1% 100V
C 62	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 63	1	ECEA1CN101S	C:FXD AL ELECT	100UF +-20% 16V
C 64	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 65	1	ECCF1H101KC	C:FXD CER TC	100PF +-10% 50V NPO
C 66	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 67	1	ECQV1H105JZ	C:FXD FLM	1UF +-5% 50V
C 68	1	ECQP1121JZ	C:FXD FLM	120PF 5% 100V
C 69	1	ECQP1201JZ	C:FXD FLM	200PF 5% 100V
C 70	1	ECQP1121JZ	C:FXD FLM	120PF 5% 100V
C 71	1	ECCF1H820KC	C:FXD CER TC	82PF +-10% 50V NPO

P7722A OSC DWG NO 4G205694-1

REF NO	QTY	PARTS NO	DESCRIPTION	
C 72	1	ECEA1AU101	C:FXD AL ELECT	100UF +-20% 10V
C 73	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 74	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 75	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 76	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 77	1	ECEA1VU101	C:FXD AL ELECT	100UF +-20% 35V
C 78	1	ECEA1VU101	C:FXD AL ELECT	100UF +-20% 35V
C 80	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 81	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 82	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 83	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 85	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 86	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 87	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 88	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 89	1	ECEA1CU100	C:FXD AL ELECT	10UF +-20% 16V
CR 2	1	MA150TA	DIODE:SI	100MA 35V
CR 3	1	MA150TA	DIODE:SI	100MA 35V
CR 5	1	MA150TA	DIODE:SI	100MA 35V
CR 6	1	MA150TA	DIODE:SI	100MA 35V
CR 7	1	MA150TA	DIODE:SI	100MA 35V
CR 8	1	MA150TA	DIODE:SI	100MA 35V
CR 9	1	MA150TA	DIODE:SI	100MA 35V
CR 10	1	MA150TA	DIODE:SI	100MA 35V
CR 11	1	MA150TA	DIODE:SI	100MA 35V
CR 12	1	MA150TA	DIODE:SI	100MA 35V
E 2	1	5020	CARD PULLER	
E 3	1	5020	CARD PULLER	
K 2	1	UDM205GA	REED RELAY	5V 42MA DPST
K 3	1	UDM205GA	REED RELAY	5V 42MA DPST
K 4	1	UDM205GA	REED RELAY	5V 42MA DPST
K 5	1	UDM205GA	REED RELAY	5V 42MA DPST
K 6	1	UDM205GA	REED RELAY	5V 42MA DPST
K 7	1	UDM205GA	REED RELAY	5V 42MA DPST
K 8	1	UDM205GA	REED RELAY	5V 42MA DPST
K 9	1	UDM205GA	REED RELAY	5V 42MA DPST
K 10	1	UDM205GA	REED RELAY	5V 42MA DPST
K 11	1	UDM205GA	REED RELAY	5V 42MA DPST
K 12	1	UDM205GA	REED RELAY	5V 42MA DPST
K 13	1	UDM205GA	REED RELAY	5V 42MA DPST

P7722A OSC DWG NO 4G205694-1

REF NO	QTY	PARTS NO	DESCRIPTION	
K 14	1	UDM205GA	REED RELAY	5V 42MA DPST
K 15	1	UDM205GA	REED RELAY	5V 42MA DPST
K 16	1	UDM205GA	REED RELAY	5V 42MA DPST
MP 65	1	4G644146-2AB	SPACER 3X25	
MP 66	1	4G644146-2AB	SPACER 3X25	
MP 67	1	4G644146-2AB	SPACER 3X25	
MP 68	1	4G644146-2AB	SPACER 3X25	
P 23	1	64P603304310	CONNECTOR:DIN 6033	64P PIN B-STYLE
Q 1	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MHZ
Q 2	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MHZ
Q 3	1	2SC1215	TSTR:SI NPN	PC:200MW FT:1200MHZ
Q 5	1	2SC1215	TSTR:SI NPN	PC:200MW FT:1200MHZ
Q 6	1	UPA71AM	TSTR:FET	PC:250MW
Q 7	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MHZ
Q 8	1	2SC828A-RS	TSTR:SI NPN	PC:250MW FT:220MHZ
Q 9	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MHZ
Q 10	1	2SA914-RS	TSTR:SI PNP	PC:1W FT:200MHZ
Q 11	1	2SC828A-RS	TSTR:SI NPN	PC:250MW FT:220MHZ
Q 12	1	2SC1318-RS	TSTR:SI NPN	PC:400MW FT:200MHZ
Q 13	1	2SA720-RS	TSTR:SI PNP	PC:400MW FT:200MHZ
Q 15	1	2SC828A-RS	TSTR:SI NPN	PC:250MW FT:220MHZ
Q 16	1	2SC828A-RS	TSTR:SI NPN	PC:250MW FT:220MHZ
Q 22	1	2SK163-MN	TSTR:FET	PC=400MW
Q 23	1	2SK163-MN	TSTR:FET	PC=400MW
Q 25	1	2SC1215	TSTR:SI NPN	PC:200MW FT:1200MHZ
Q 26	1	2SC1215	TSTR:SI NPN	PC:200MW FT:1200MHZ
Q 27	1	2SC1215	TSTR:SI NPN	PC:200MW FT:1200MHZ
Q 28	1	2SC1215	TSTR:SI NPN	PC:200MW FT:1200MHZ
R 1	1	ERD25TJ1R0T	R:FXD CARBON	1 OHM 5% 1/4W
R 10	1	ERN55CC9950	R:FXD MET FLM	995 OHM 0.25% 1/4W
R 11	1	ERN55CC9950	R:FXD MET FLM	995 OHM 0.25% 1/4W
R 12	1	ERN55CC1991	R:FXD MET FLM	1.99K OHM 0.25% 1/4W
R 13	1	ERN55CC1991	R:FXD MET FLM	1.99K OHM 0.25% 1/4W
R 14	1	ERN55CC3981	R:FXD MET FLM	3.98K OHM 0.25% 1/4W
R 15	1	ERN55CC3981	R:FXD MET FLM	3.98K OHM 0.25% 1/4W
R 16	1	ERN55CC7961	F:FXD MET FLM	7.96K OHM 0.25% 1/4W
R 17	1	ERN55CC7961	F:FXD MET FLM	7.96K OHM 0.25% 1/4W
R 18	1	ERN55CC9951	R:FXD MET FLM	9.95K OHM 0.25% 1/4W
R 19	1	ERN55CC9951	R:FXD MET FLM	9.95K OHM 0.25% 1/4W
R 20	1	ERN55CC1992	R:FXD MET FLM	19.9K OHM 0.25% 1/4W
R 21	1	ERN55CC1992	R:FXD MET FLM	19.9K OHM 0.25% 1/4W

P7722A OSC DWG NO 4G205694-1

REF NO	QTY	PARTS NO	DESCRIPTION	
R 22	1	ERN55CC3982	R:FXD MET FLM	39.8K OHM 0.25% 1/4W
R 23	1	ERN55CC3982	R:FXD MET FLM	39.8K OHM 0.25% 1/4W
R 24	1	ERO25CHD7962	R:FXD MET FLM	79.6K OHM 0.5% 1/4W
R 25	1	ERO25CHD7962	R:FXD MET FLM	79.6K OHM 0.5% 1/4W
R 26	1	ERO25CHD1003	R:FXD MET FLM	100K OHM 0.5% 1/4W
R 27	1	ERO25CHD1003	R:FXD MET FLM	100K OHM 0.5% 1/4W
R 28	1	EROS2TKF2003	R:FXD MET FLM	200K OHM 1% 1/4W
R 29	1	EROS2TKF2003	R:FXD MET FLM	200K OHM 1% 1/4W
R 30	1	EROS2TKF4023	R:FXD MET FLM	402K OHM 1% 1/4W
R 31	1	EROS2TKF4023	R:FXD MET FLM	402K OHM 1% 1/4W
R 32	1	EROS2TKF8063	R:FXD MET FLM	806K OHM 1% 1/4W
R 33	1	EROS2TKF8063	R:FXD MET FLM	806K OHM 1% 1/4W
R 34	1	ERD25TJ225T	R:FXD CARBON	2.2M OHM 5% 1/4W
R 35	1	ERD25TJ225T	R:FXD CARBON	2.2M OHM 5% 1/4W
R 36	1	ERD25TJ225T	R:FXD CARBON	2.2M OHM 5% 1/4W
R 37	1	ERD25TJ225T	R:FXD CARBON	2.2M OHM 5% 1/4W
R 38	1	ERD25TJ102T	R:FXD CARBON	1K OHM 5% 1/4W
R 40	1	ERO25CKF4750	R:FXD MET FLM	475 OHM 1% 1/4W
R 41	1	ERO25CKF4750	R:FXD MET FLM	475 OHM 1% 1/4W
R 42	1	ERD25TJ472T	R:FXD CARBON	4.7K OHM 5% 1/4W
R 43	1	ERD25TJ122T	R:FXD CARBON	1.2K OHM 5% 1/4W
R 44	1	ERD25TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 45	1	ERD25TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 46	1	ERD25TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 47	1	ERD25TJ221T	R:FXD CARBON	220 OHM 5% 1/4W
R 48	1	ERD25TJ220T	R:FXD CARBON	22 OHM 5% 1/4W
R 49	1	ERD25TJ331T	R:FXD CARBON	330 OHM 5% 1/4W
R 50	1	ERD25TJ100T	R:FXD CARBON	10 OHM 5% 1/4W
R 51	1	ERD25TJ100T	R:FXD CARBON	10 OHM 5% 1/4W
R 52	1	EVMQ1GA01B21	R:VAR CERMET	20 OHM 20%
R 53	1	EROS2TKF2212	R:FXD MET FLM	22.1K OHM 1% 1/4W
R 54	1	EROS2TKF1001	R:FXD MET FLM	1K OHM 1% 1/4W
R 55	1	ERD25TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 56	1	EVMQ1GA01B53	R:VAR CERMET	5K OHM 20%
R 57	1	ERD25TJ100T	R:FXD CARBON	10 OHM 5% 1/4W
R 58	1	EROS2TKF2211	R:FXD MET FLM	2.21K OHM 1% 1/4W
R 59	1	EROS2TKF2671	R:FXD MET FLM	2.67K OHM 1% 1/4W
R 60	1	ERO25CKF1002	R:FXD MET FLM	10K OHM 1% 1/4W
R 61	1	ERD25TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 62	1	ERD25TJ242T	R:FXD CARBON	2.4K OHM 5% 1/4W
R 63	1	ERD25TJ102T	R:FXD CARBON	1K OHM 5% 1/4W
R 64	1	ERD25TJ102T	R:FXD CARBON	1K OHM 5% 1/4W

P7722A OSC DWG NO 4G205694-1

REF NO	QTY	PARTS NO	DESCRIPTION	
R 65	1	EVMQ1GA01B53	R:VAR CERMET	5K OHM 20%
R 66	1	ERD25TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 83	1	EROS2TKF3012	R:FXD MET FLM	30.1K OHM 1% 1/4W
R 84	1	EROS2TKF1001	R:FXD MET FLM	1K OHM 1% 1/4W
R 85	1	ERO25CKF1002	R:FXD MET FLM	10K OHM 1% 1/4W
R 86	1	ERD25TJ220T	R:FXD CARBON	22 OHM 5% 1/4W
R 88	1	ERD25TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 89	1	ERD25TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 90	1	EROS2TKF2492	R:FXD MET FLM	24.9K OHM 1% 1/4W
R 91	1	ERD25TJ224T	R:FXD CARBON	220K OHM 5% 1/4W
R 92	1	EROS2TKF4991	R:FXD MET FLM	4.99K OHM 1% 1/4W
R 93	1	EROS2TKF4751	R:FXD MET FLM	4.75K OHM 1% 1/4W
R 94	1	EROS2TKF1001	R:FXD MET FLM	1K OHM 1% 1/4W
R 95	1	ERD25TJ220T	R:FXD CARBON	22 OHM 5% 1/4W
R 96	1	EROS2TKF1582	R:FXD MET FLM	15.8K OHM 1% 1/4W
R 97	1	ERD25TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 98	1	ERD25TJ222T	R:FXD CARBON	2.2K OHM 5% 1/4W
R 99	1	ERD25TJ472T	R:FXD CARBON	4.7K OHM 5% 1/4W
R 100	1	ERD25TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 101	1	ERD25TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 102	1	ERD25TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 103	1	ERD25TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 104	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 105	1	ERD25TJ222T	R:FXD CARBON	2.2K OHM 5% 1/4W
R 106	1	ERD25TJ123T	R:FXD CARBON	12K OHM 5% 1/4W
R 107	1	ERD25TJ224V	R:FXD CARBON	220K OHM 5% 1/4W
R 108	1	ERD25TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 109	1	ERD25TJ224T	R:FXD CARBON	220K OHM 5% 1/4W
R 110	1	ERD25TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 111	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 113	1	ERD25TJ102T	R:FXD CARBON	1K OHM 5% 1/4W
R 114	1	ERD25TJ473V	R:FXD CARBON	47K OHM 5% 1/4W
R 115	1	ERD25TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 116	1	ERD25TJ333T	R:FXD CARBON	33K OHM 5% 1/4W
R 117	1	ERD25TJ682T	R:FXD CARBON	6.8K OHM 5% 1/4W
R 118	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R 120	1	EROS2TKF5901	R:FXD MET FLM	5.90K OHM 1% 1/4W
R 121	1	EROS2TKF2001	R:FXD MET FLM	2.00K OHM 1% 1/4W
R 122	1	ERO25CKF4750	R:FXD MET FLM	475 OHM 1% 1/4W
R 123	1	EROS2TKF8061	R:FXD MET FLM	8.06K OHM 1% 1/4W
R 124	1	EROS2TKF4751	R:FXD MET FLM	4.75K OHM 1% 1/4W
125	1	EROS2TKF5491	R:FXD MET FLM	5.49K OHM 1% 1/4W

P7722A OSC DWG NO 4G205694-1

REF NO	QTY	PARTS NO	DESCRIPTION	
R 126	1	EROS2TKF4531	R:FXD MET FLM	4.53K OHM 1% 1/4W
R 127	1	ERD25TJ472T	R:FXD CARBON	4.7K OHM 5% 1/4W
R 128	1	ERD25TJ472T	R:FXD CARBON	4.7K OHM 5% 1/4W
R 129	1	ERD25TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 130	1	ERD25TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 131	1	EROS2TKF4871	R:FXD MET FLM	4.87K OHM 1% 1/4W
R 132	1	EROS2TKF5111	R:FXD MET FLM	5.11K OHM 1% 1/4W
R 133	1	ERD25TJ751T	R:FXD CARBON	750 OHM 5% 1/4W
R 134	1	EROS2TKF4991	R:FXD MET FLM	4.99K OHM 1% 1/4W
R 135	1	EROS2TKF1502	R:FXD MET FLM	15.0K OHM 1% 1/4W
R 137	1	ERD25TJ472T	R:FXD CARBON	4.7K OHM 5% 1/4W
R 138	1	ERD25TJ473T	R:FXD CARBON	47K OHM 5% 1/4W
R 139	1	EVMQ1GA01B13	R:VAR CERMET	1K OHM 20%
R 140	1	ERD25TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 141	1	ERD25TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 142	1	ERD25TJ102T	R:FXD CARBON	1K OHM 5% 1/4W
U 3	1	NE5534AP	IC:OP AMP	LOW NOISE
U 5	1	MC1494L	IC:MULTIPLIER	LINER FOUR-QUADRANT MULT
U 6	1	AN6914	IC:LINEAR	DUAL COMPARATOR
U 7	1	NJM311D	IC:COMPARATOR	SINGLE 200N SEC STROBE
U 8	1	CMOS4528BP	IC:C MOS	DUAL MOHO MULTI
U 9	1	NJM311D	IC:COMPARATOR	SINGLE 200N SEC STROBE
U 10	1	CMOS4528BP	IC:C MOS	DUAL MOHO MULTI
U 11	1	CMOS4011BP	IC:C MOS	QUAD 2-INPUT NAND GATE
U 12	1	NJM082BD-A	IC:OP AMP	BI-FET DUAL
U 13	1	UPC649C	IC:OP AMP	SAMPLE AND HOLD
U 15	1	TL081CP	IC:OP AMP	BI-FET
U 16	1	NJM082BD-A	IC:OP AMP	BI-FET DUAL
U 17	1	TD62307P	IC:DRIVER	7LINE RELAY DRIVER
U 18	1	TD62307P	IC:DRIVER	7LINE RELAY DRIVER
VR 2	1	RD5.1EB2	DIODE:ZENER	5.1V 500MW
VR 5	1	RD5.1EB2	DIODE:ZENER	5.1V 500MW
VR 6	1	RD5.1EB2	DIODE:ZENER	5.1V 500MW
VR 7	1	RD5.1EB2	DIODE:ZENER	5.1V 500MW

P7722A PRE-AMP DWG NO 4G205695

REF NO	QTY	PARTS NO	DESCRIPTION	
C 1	1	ECQP1203FZ	C:FXD FLM	0.02UF 1% 100V
C 2	1	ECQP1102FZ	C:FXD FLM	1000PF 1% 100V
C 3	1	ECQP1392FZ	C:FXD FLM	3900PF 1% 100V
C 4	1	ECQP1152FZ	C:FXD FLM	1500PF 1% 100V
C 5	1	ECQP1272FZ	C:FXD FLM	2700PF 1% 100V
C 6	1	ECQP1222FZ	C:FXD FLM	2200PF 1% 100V
C 7	1	ECQE1683JN	C:FXD FLM	0.068 UF 5% 100V
C 8	1	ECQE1333JN	C:FXD FLM	0.033 UF 5% 100V
C 9	1	ECQE1563JN	C:FXD FLM	0.056 UF 5% 100V
C 10	1	ECQE1223JN	C:FXD FLM	0.022 UF 5% 100V
C 11	1	ECQP1512FZ	C:FXD FLM	5100PF 100V 1%
C 12	1	ECQP1512FZ	C:FXD FLM	5100PF 100V 1%
C 13	1	ECQP1512FZ	C:FXD FLM	5100PF 100V 1%
C 14	1	ECQP1512FZ	C:FXD FLM	5100PF 100V 1%
C 15	1	ECQP1512FZ	C:FXD FLM	5100PF 100V 1%
C 16	1	ECQP1103FZ	C:FXD FLM	0.01UF 1% 100V
C 17	1	ECQP1103FZ	C:FXD FLM	0.01UF 1% 100V
C 31	1	ECQE2105JS	C:FXD FLM	1.0 UF 5% 250V
C 32	1	ECCD2H080DC	C:FXD CER TC	8PF +-0.5PF 500V NPO
C 33	1	ECV1ZW10X32	C:VAR CER	12PF-2PF 250V
C 34	1	ECCD2H330KC	C:FXD CER TC	33PF +-10% 500V NPO
C 35	1	DM10D111J5	C:FXD MICA	110PF 5% 500V
C 36	1	ECCD2H220KC	C:FXD CER TC	22PF +-10% 500V NPO
C 37	1	ECV1ZW20X32	C:VAR CER	22.5PF-2.5PF 250V
C 38	1	ECCD2H330KC	C:FXD CER TC	33PF +-10% 500V NPO
C 39	1	ECKD2H103MD	C:FXD CER HI-K	10000PF +-20% 500V
C 40	1	ECCD2H330KC	C:FXD CER TC	33PF +-10% 500V NPO
C 41	1	ECEA1VU100	C:FXD AL ELECT	10UF +-20% 35V
C 42	1	ECEA1VU100	C:FXD AL ELECT	10UF +-20% 35V
C 43	1	ECEA1CU470	C:FXD AL ELECT	47UF +-20% 16V
C 44	1	ECEA1CU470	C:FXD AL ELECT	47UF +-20% 16V
C 51	1	ECQE2105JS	C:FXD FLM	1.0 UF 5% 250V
C 52	1	ECCD2H080DC	C:FXD CER TC	8PF +-0.5PF 500V NPO
C 53	1	ECV1ZW10X32	C:VAR CER	12PF-2PF 250V
C 54	1	ECCD2H330KC	C:FXD CER TC	33PF +-10% 500V NPO
C 55	1	DM10D111J5	C:FXD MICA	110PF 5% 500V
C 56	1	ECCD2H220KC	C:FXD CER TC	22PF +-10% 500V NPO
C 57	1	ECV1ZW20X32	C:VAR CER	22.5PF-2.5PF 250V
C 58	1	ECCD2H330KC	C:FXD CER TC	33PF +-10% 500V NPO
C 59	1	ECKD2H103MD	C:FXD CER HI-K	10000PF +-20% 500V
C 60	1	ECCD2H330KC	C:FXD CER TC	33PF +-10% 500V NPO
C 61	1	ECEA1VU100	C:FXD AL ELECT	10UF +-20% 35V

P7722A PRE-AMP DWG NO 4G205695

REF NO	QTY	PARTS NO	DESCRIPTION	
C 62	1	ECEA1VU100	C:FXD AL ELECT	10UF +-20% 35V
C 63	1	ECEA1CU470	C:FXD AL ELECT	47UF +-20% 16V
C 64	1	ECEA1CU470	C:FXD AL ELECT	47UF +-20% 16V
C 71	1	ECCF1H220KC	C:FXD CER TC	22PF +-10% 50V NPO
C 72	1	ECCF1H220KC	C:FXD CER TC	22PF +-10% 50V NPO
C 75	1	ECCF1H330KC	C:FXD CER TC	33PF +-10% 50V NPO
C 76	1	ECCF1H330KC	C:FXD CER TC	33PF +-10% 50V NPO
C 81	1	ECCF1H080DC	C:FXD CER TC	8PF +-0.5PF 50V NPO
C 82	1	ECV1ZW20X32	C:VAR CER	22.5PF-2.5PF 250V
C 83	1	ECEA1CN221S	C:FXD AL ELECT	220UF +-20% 16V
C 84	1	ECEA1CN100S	C:FXD AL ELECT	10UF +-20% 16V
C 85	1	ECCF1H470KC	C:FXD CER TC	47PF +-10% 50V NPO
C 86	1	ECCF1H470KC	C:FXD CER TC	47PF +-10% 50V NPO
C 87	1	ECCF1H680KC	C:FXD CER TC	68PF +-10% 50V NPO
C 88	1	ECCF1H680KC	C:FXD CER TC	68PF +-10% 50V NPO
C 91	1	ECCF1H151KC	C:FXD CER TC	150PF +-10% 50V NPO
C 92	1	ECCF1H050DC	C:FXD CER TC	5PF +-0.5PF 50V NPO
C 93	1	ECCF1H151KC	C:FXD CER TC	150PF +-10% 50V NPO
C 94	1	ECQE1153KN	C:FXD FLM	0.015UF 10% 100V
C 95	1	ECQE1124KN	C:FXD FLM	0.12UF 5% 100V
C 96	1	ECQE1224KZ	C:FXD FLM	0.22UF 10% 100V
C 101	1	ECEA1VU470	C:FXD AL ELECT	47UF +-20% 35V
C 102	1	ECEA1VU470	C:FXD AL ELECT	47UF +-20% 35V
C 103	1	ECEA1CU470	C:FXD AL ELECT	47UF +-20% 16V
C 104	1	ECEA1CU470	C:FXD AL ELECT	47UF +-20% 16V
C 105	1	ECEA1CU470	C:FXD AL ELECT	47UF +-20% 16V
C 106	1	ECEA1CU470	C:FXD AL ELECT	47UF +-20% 16V
C 107	1	ECEA1AU101	C:FXD AL ELECT	100UF +-20% 10V
C 111	1	ECEA1VU101	C:FXD AL ELECT	100UF +-20% 35V
C 112	1	ECEA1VU101	C:FXD AL ELECT	100UF +-20% 35V
CR **	1	1SS101	DIODE:SI SCHOTTKY	15MA 70V
CR 1	1	MA150TA	DIODE:SI	100MA 35V
CR 2	1	MA150TA	DIODE:SI	100MA 35V
CR 31	1	1SS101	DIODE:SI SCHOTTKY	15MA 70V
CR 32	1	1SS101	DIODE:SI SCHOTTKY	15MA 70V
CR 33	1	1SS101	DIODE:SI SCHOTTKY	15MA 70V
CR 34	1	1SS101	DIODE:SI SCHOTTKY	15MA 70V
CR 35	1	1SS101	DIODE:SI SCHOTTKY	15MA 70V
CR 36	1	1SS101	DIODE:SI SCHOTTKY	15MA 70V
CR 37	1	1SS101	DIODE:SI SCHOTTKY	15MA 70V
CR 38	1	1SS101	DIODE:SI SCHOTTKY	15MA 70V
CR 41	1	MA150TA	DIODE:SI	100MA 35V

P7722A PRE-AMP DWG NO 4G205695

REF NO	QTY	PARTS NO	DESCRIPTION	
CR 42	1	MA150TA	DIODE:SI	100MA 35V
CR 43	1	MA150TA	DIODE:SI	100MA 35V
E 3	1	5020	CARD PULLER	
E 4	1	5020	CARD PULLER	
E 5	1	TCP/D43BSB	RIVET NSC4-3	
J 53	1	163683-4	CONNECTOR:PIN	CIS 6P 2.5PITCH
J 55	1	163683-1	CONNECTOR:PIN	CIS 3P 2.5PITCH
J 62	1	170001-2	CONNECTOR	FAST-ON 187 TAB
K 1	1	AG232944	RELAY	5V 36MA DPDT DS
K 2	1	AG232944	RELAY	5V 36MA DPDT DS
K 3	1	AG232944	RELAY	5V 36MA DPDT DS
K 4	1	AG232944	RELAY	5V 36MA DPDT DS
K 5	1	AG232944	RELAY	5V 36MA DPDT DS
K 6	1	AG232944	RELAY	5V 36MA DPDT DS
K 7	1	AE5649	REED RELAY	5V 1A-20VDC 1PDT NR
K 8	1	UDM205GA	REED RELAY	5V 42MA DPST
K 9	1	AG232944	RELAY	5V 36MA DPDT DS
MP 57	1	4G644146-2AB	SPACER 3X25	
MP 58	1	4G644146-2AB	SPACER 3X25	
MP 59	1	4G644146-2AB	SPACER 3X25	
MP 60	1	4G644146-2AB	SPACER 3X25	
MP 94	1	4G617714-0CB	P7722A PLATE:SHIELD-4	
P 1	1	M3305P03	CONNECTOR:PIN	5P ANGLE
P 2	1	M3305P03	CONNECTOR:PIN	5P ANGLE
P 3	1	M3305P03	CONNECTOR:PIN	5P ANGLE
P 4	1	M3305P03	CONNECTOR:PIN	5P ANGLE
P 24	1	64P603304310	CONNECTOR:DIN 6033	64P PIN B-STYLE
R 1	1	ERO10CKF1002	R:FXD MET FLM	10K OHM 1% 1/8W
R 2	1	ERO10CKF1002	R:FXD MET FLM	10K OHM 1% 1/8W
R 3	1	ERO10CKF1002	R:FXD MET FLM	10K OHM 1% 1/8W
R 4	1	ERO10CKF2002	R:FXD MET FLM	20.0K OHM 1% 1/8W
R 5	1	EROS2TKF6812	R:FXD MET FLM	68.1K OHM 1% 1/4W
R 6	1	ERO10CKF7152	R:FXD MET FLM	71.5K OHM 1% 1/8W
R 7	1	ERO10CKF7152	R:FXD MET FLM	71.5K OHM 1% 1/8W
R 8	1	ERO10CKF1303	R:FXD MET FLM	130K OHM 1% 1/8W
R 9	1	ERO10CKF1303	R:FXD MET FLM	130K OHM 1% 1/8W
R 10	1	ERO10CKF1303	R:FXD MET FLM	130K OHM 1% 1/8W
R 11	1	ERO10CKF1303	R:FXD MET FLM	130K OHM 1% 1/8W
R 12	1	ERDS2TJ394T	R:FXD CARBON	390K OHM 5% 1/4W

P7722A PRE-AMP DWG NO 4G205695

REF NO	QTY	PARTS NO	DESCRIPTION	
R 13	1	ERDS2TJ394T	R:FXD CARBON	390K OHM 5% 1/4W
R 14	1	ERO10CKF2002	R:FXD MET FLM	20.0K OHM 1% 1/8W
R 15	1	ERO10CKF4022	R:FXD MET FLM	40.2K OHM 1% 1/8W
R 16	1	ERO10CKF4022	R:FXD MET FLM	40.2K OHM 1% 1/8W
R 17	1	ERO10CKF1692	R:FXD MET FLM	16.9K OHM 1% 1/8W
R 18	1	ERO10CKF1022	R:FXD MET FLM	10.2K OHM 1% 1/8W
R 19	1	ERO10CKF1243	R:FXD MET FLM	124K OHM 1% 1/8W
R 20	1	ERO10CKF1182	R:FXD MET FLM	11.8K OHM 1% 1/8W
R 21	1	ERO10CKF2323	R:FXD MET FLM	232K OHM 1% 1/8W
R 22	1	ERO10CKF2211	R:FXD MET FLM	2.21K OHM 1% 1/8W
R 23	1	ERO25CKF4873	R:FXD MET FLM	487K OHM 1% 1/4W
R 24	1	ERDS2TJ220T	R:FXD CARBON	22 OHM 5% 1/4W
R 25	1	ERDS2TJ220T	R:FXD CARBON	22 OHM 5% 1/4W
R 26	1	ERDS2TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 27	1	ERDS2TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 31	1	ERO25CHD8982	R:FXD MET FLM	89.8K OHM 0.5% 1/4W
R 32	1	ERO25CHD1112	R:FXD MET FLM	11.1K OHM 0.5% 1/4W
R 33	1	ERO25CHD6812	R:FXD MET FLM	68.1K OHM 0.5% 1/4W
R 34	1	ERO25CHD4642	R:FXD MET FLM	46.4K OHM 0.5% 1/4W
R 35	1	ERDS2TJ104T	R:FXD CARBON	100K OHM 5% 1/4W
R 36	1	ERO25CHD1003	R:FXD MET FLM	100K OHM 0.5% 1/4W
R 37	1	ERD25TJ100V	R:FXD CARBON	10 OHM 5% 1/4W
R 38	1	ERD25TJ100V	R:FXD CARBON	10 OHM 5% 1/4W
R 41	1	ERO25CHD8982	R:FXD MET FLM	89.8K OHM 0.5% 1/4W
R 42	1	ERO25CHD1112	R:FXD MET FLM	11.1K OHM 0.5% 1/4W
R 43	1	ERO25CHD6812	R:FXD MET FLM	68.1K OHM 0.5% 1/4W
R 44	1	ERO25CHD4642	R:FXD MET FLM	46.4K OHM 0.5% 1/4W
R 45	1	ERDS2TJ104T	R:FXD CARBON	100K OHM 5% 1/4W
R 46	1	ERO25CHD1003	R:FXD MET FLM	100K OHM 0.5% 1/4W
R 47	1	ERD25TJ100V	R:FXD CARBON	10 OHM 5% 1/4W
R 48	1	ERD25TJ100V	R:FXD CARBON	10 OHM 5% 1/4W
R 51	1	ERN55CC5001	R:FXD MET FLM	5K OHM 0.25% 1/4W
R 52	1	ERN55CC5001	R:FXD MET FLM	5K OHM 0.25% 1/4W
R 53	1	ERN55CC4501	R:FXD MET FLM	4.50K OHM 0.25% 1/4W
R 54	1	ERN55CC4501	R:FXD MET FLM	4.50K OHM 0.25% 1/4W
R 55	1	ERN55CC5550	R:FXD MET FLM	550 OHM 0.25% 1/4W
R 56	1	ERN55CC5550	R:FXD MET FLM	550 OHM 0.25% 1/4W
R 57	1	ERN55CC3421	R:FXD MET FLM	3.42K OHM 0.25% 1/4W
R 58	1	ERN55CC3421	R:FXD MET FLM	3.42K OHM 0.25% 1/4W
R 59	1	ERN55CC2311	R:FXD MET FLM	2.31K OHM 0.25% 1/4W
R 60	1	ERN55CC2311	R:FXD MET FLM	2.31K OHM 0.25% 1/4W
R 61	1	ERN55CC2191	R:FXD MET FLM	2.19K OHM 0.25% 1/4W

P7722A PRE-AMP DWG NO 4G205695

REF NO	QTY	PARTS NO	DESCRIPTION	
R 62	1	ERN55CC2191	R:FXD MET FLM	2.19K OHM 0.25% 1/4W
R 63	1	ERN55CC6421	R:FXD MET FLM	6.42K OHM 0.25% 1/4W
R 64	1	ERN55CC6421	R:FXD MET FLM	6.42K OHM 0.25% 1/4W
R 65	1	ERN55CC1251	R:FXD MET FLM	1.25K OHM 0.25% 1/4W
R 66	1	ERN55CC1251	R:FXD MET FLM	1.25K OHM 0.25% 1/4W
R 67	1	ERN55CC1502	R:FXD MET FLM	15.2K OHM 0.25% 1/4W
R 68	1	ERN55CC1502	R:FXD MET FLM	15.2K OHM 0.25% 1/4W
R 71	1	ERO10CKF4991	R:FXD MET FLM	4.99K OHM 1% 1/8W
R 72	1	EVMQ1GA01B52	R:VAR CERMET	500 OHM 20%
R 73	1	ERO10CKF4991	R:FXD MET FLM	4.99K OHM 1% 1/8W
R 74	1	ERO10CKF4991	R:FXD MET FLM	4.99K OHM 1% 1/8W
R 75	1	ERO10CKF4991	R:FXD MET FLM	4.99K OHM 1% 1/8W
R 76	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 77	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 81	1	ERO10CKF1002	R:FXD MET FLM	10K OHM 1% 1/8W
R 82	1	ERDS2TJ512T	R:FXD CARBON	5.1K OHM 5% 1/4W
R 83	1	ERO10CKF2002	R:FXD MET FLM	20.0K OHM 1% 1/8W
R 84	1	ERO10CKF1002	R:FXD MET FLM	10K OHM 1% 1/8W
R 85	1	ERO10CKF1002	R:FXD MET FLM	10K OHM 1% 1/8W
R 86	1	ERO10CKF1542	R:FXD MET FLM	15.4K OHM 1% 1/8W
R 87	1	EVMQ1GA01B53	R:VAR CERMET	5K OHM 20%
R 88	1	ERDS2TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 89	1	ERDS2TJ104T	R:FXD CARBON	100K OHM 5% 1/4W
R 90	1	EVMQ1GA01B15	R:VAR CERMET	100K OHM 20%
R 101	1	ERDS2TJ393T	R:FXD CARBON	39K OHM 5% 1/4W
R 102	1	ERDS2TJ393T	R:FXD CARBON	39K OHM 5% 1/4W
R 103	1	ERDS2TJ474T	R:FXD CARBON	470K OHM 5% 1/4W
R 104	1	ERDS2TJ474T	R:FXD CARBON	470K OHM 5% 1/4W
R 111	1	ERDS2TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 112	1	ERDS2TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 113	1	ERDS2TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 114	1	ERDS2TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 115	1	ERDS2TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 116	1	ERDS2TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 117	1	ERDS2TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 118	1	ERDS2TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 119	1	ERDS2TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 121	1	ERD25TJ471V	R:FXD CARBON	470 OHM 5% 1/4W
U 1	1	NJM5532M	IC:OP AMP	DUAL LOW-NOISE
U 2	1	NJM082BM	IC:OP AMP	BI-FET DUAL MINI MOLD
U 3	1	NJM082BM	IC:OP AMP	BI-FET DUAL MINI MOLD
U 4	1	NJM082BM	IC:OP AMP	BI-FET DUAL MINI MOLD

P7722A PRE-AMP DWG NO 4G205695

REF NO	QTY	PARTS NO	DESCRIPTION	
U 5	1	NJM082BM	IC:OP AMP	BI-FET DUAL MINI MOLD
U 31	1	UPC157C	IC:OP AMP	
U 32	1	UPC157C	IC:OP AMP	
U 33	1	TL191CN	IC:ANALOG SWITCHES	RDS=300 OHM MAX
U 34	1	NJM082BD-A	IC:OP AMP	BI-FET DUAL
U 35	1	TL604CP	IC:ANALOG SW	INPUT LEVEL +-10V MAX
U 36	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 37	1	TD62307P	IC:DRIVER	7LINE RELAY DRIVER

P7722A AMP DWG NO 4G205696

REF NO	QTY	PARTS NO	DESCRIPTION	
C 11	1	ECCF1H101KC	C:FXD CER TC	100PF +-10% 50V NPO
C 12	1	ECKF1H103MD	C:FXD CER HI-K	10000PF +-20% 50V
C 13	1	ECCF1H100FC	C:FXD CER TC	10PF +-1.0PF 50V NPO
C 14	1	ECEA1VU100	C:FXD AL ELECT	10UF +-20% 35V
CR 11	1	MA150TA	DIODE:SI	100MA 35V
CR 12	1	MA150TA	DIODE:SI	100MA 35V
CR 13	1	MA150TA	DIODE:SI	100MA 35V
Q 11	1	UPA70ALM	TSTR:FET	DUAL PC:250MW
Q 12	1	2SC1215	TSTR:SI NPN	PC:200MW FT:1200MHZ
Q 13	1	2SC1215	TSTR:SI NPN	PC:200MW FT:1200MHZ
Q 14	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MHZ
Q 15	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MHZ
Q 16	1	2N3906	TSTR:SI PNP	PC:300MW FT:250MHZ
Q 17	1	2N3906	TSTR:SI PNP	PC:300MW FT:250MHZ
Q 18	1	2SC828A-RS	TSTR:SI NPN	PC:250MW FT:220MHZ
Q 19	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MHZ
Q 20	1	2SC828A-RS	TSTR:SI NPN	PC:250MW FT:220MHZ
Q 21	1	2SC828A-RS	TSTR:SI NPN	PC:250MW FT:220MHZ
Q 22	1	2SC828A-RS	TSTR:SI NPN	PC:250MW FT:220MHZ
Q 23	1	2SC828A-RS	TSTR:SI NPN	PC:250MW FT:220MHZ
Q 24	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MHZ
R 11	1	EVMQ0GA01B21	R:VAR CERMET	20 OHM 20% 0.5W
R 12	1	ERDS2TJ331T	R:FXD CARBON	330 OHM 5% 1/4W
R 13	1	ERDS2TJ681T	R:FXD CARBON	680 OHM 5% 1/4W
R 14	1	ERDS2TJ681T	R:FXD CARBON	680 OHM 5% 1/4W
R 15	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 16	1	ERDS2TJ510T	R:FXD CARBON	51 OHM 5% 1/4W
R 17	1	ERDS2TJ331T	R:FXD CARBON	330 OHM 5% 1/4W
R 18	1	ERDS2TJ222T	R:FXD CARBON	2.2K OHM 5% 1/4W
R 19	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 20	1	ERDS2TJ102T	R:FXD CARBON	1K OHM 5% 1/4W
R 21	1	ERDS2TJ202T	R:FXD CARBON	2K OHM 5% 1/4W
R 22	1	ERDS2TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 23	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 24	1	ERDS2TJ102T	R:FXD CARBON	1K OHM 5% 1/4W
R 25	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 26	1	ERDS2TJ220T	R:FXD CARBON	22 OHM 5% 1/4W
R 27	1	ERD25TJ100V	R:FXD CARBON	10 OHM 5% 1/4W
R 28	1	ERD25TJ100V	R:FXD CARBON	10 OHM 5% 1/4W
R 29	1	ERDS2TJ100T	R:FXD CARBON	10 OHM 5% 1/4W
R 11	1	RD6.2EB2	DIODE:ZENER	6.0V 500MW

P7722A 1ST NOTCH DWG NO 4G205697-1

REF NO	QTY	PARTS NO	DESCRIPTION	
C 11	1	ECV1ZW20X32	C:VAR CER	22.5PF-2.5PF 250V
C 12	1	ECCF1H020CC	C:FXD CER TC	2PF +-0.25PF 50V NPO
C 13	1	ECCF1H220KC	C:FXD CER TC	22PF +-10% 50V NPO
C 14	1	ECCF1H010CC	C:FXD CER TC	1PF +-0.25PF 50V NPO
C 15	1	ECQV1H105JZ	C:FXD FLM	1UF +-5% 50V
C 16	1	ECQV1H105JZ	C:FXD FLM	1UF +-5% 50V
C 21	1	ECV1ZW20X32	C:VAR CER	22.5PF-2.5PF 250V
C 22	1	ECQP1391JZ	C:FXD FLM	390PF 5% 100V
C 23	1	ECQP1561GZ	C:FXD FLM	560PF 2% 100V
C 24	1	ECV1ZW60X32	C:VAR CER	60PF
C 25	1	ECQP1151JZ	C:FXD FLM	150PF 5% 100V
C 26	1	ECQP1182FZ	C:FXD FLM	1800PF 1% 100V
C 27	1	ECQP1432FZ	C:FXD FLM	4300PF 1% 100V
C 28	1	ECQP1472FZ	C:FXD FLM	4700PF 1% 100V
C 29	1	ECQP1183FZ	C:FXD FLM	0.018UF 1% 100V
C 30	1	ECQP1433FZ	C:FXD FLM	0.043UF 1% 100V
C 31	1	ECQP1473FZ	C:FXD FLM	0.047UF 1% 100V
C 32	1	ECQP1184FZ	C:FXD FLM	0.18UF 1% 100V
C 33	1	ECQP1434FZ	C:FXD FLM	0.43UF 1% 100V
C 34	1	ECQP1474FZ	C:FXD FLM	0.47UF 1% 100V
C 35	1	ECQP1434FZ	C:FXD FLM	0.43UF 1% 100V
C 36	1	ECQP1434FZ	C:FXD FLM	0.43UF 1% 100V
C 37	1	ECQP1474FZ	C:FXD FLM	0.47UF 1% 100V
C 38	1	ECQP1474FZ	C:FXD FLM	0.47UF 1% 100V
C 42	1	ECEA1EN100S	C:FXD AL ELECT	10UF +-20% 25V
C 43	1	ECEA1AU101	C:FXD AL ELECT	100UF +-20% 10V
C 51	1	ECQP1471GZ	C:FXD FLM	470PF 2% 100V
C 52	1	ECQP1472FZ	C:FXD FLM	4700PF 1% 100V
C 53	1	ECQV1H473JZ	C:FXD FLM	0.047UF +-5% 50V
C 54	1	ECQV1H474JZ	C:FXD FLM	0.47UF +-5% 50V
C 55	1	ECEA1AU101	C:FXD AL ELECT	100UF +-20% 10V
C 56	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 57	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 58	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 59	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 61	1	ECEA1EN100S	C:FXD AL ELECT	10UF +-20% 25V
C 62	1	ECEA1CU100	C:FXD AL ELECT	10UF +-20% 16V
C 63	1	ECEA1CU100	C:FXD AL ELECT	10UF +-20% 16V
C 64	1	ECEA1CU100	C:FXD AL ELECT	10UF +-20% 16V
C 65	1	ECEA1CU100	C:FXD AL ELECT	10UF +-20% 16V
C 66	1	ECEA1CU100	C:FXD AL ELECT	10UF +-20% 16V
C 67	1	ECEA1CU100	C:FXD AL ELECT	10UF +-20% 16V

P7722A 1ST NOTCH DWG NO 4G205697-1

REF NO	QTY	PARTS NO	DESCRIPTION	
C 68	1	ECEA1CU100	C:FXD AL ELECT	10UF +-20% 16V
C 69	1	ECEA1CU100	C:FXD AL ELECT	10UF +-20% 16V
C 71	1	ECQP1222FZ	C:FXD FLM	2200PF 1% 100V
C 72	1	ECQE1223JN	C:FXD FLM	0.022 UF 5% 100V
C 73	1	ECQV1H224JZ	C:FXD FLM	0.22UF +-5% 50V
C 74	1	ECQE1225JN	C:FXD FLM	2.2U 5% 100V
C 75	1	ECQP1222FZ	C:FXD FLM	2200PF 1% 100V
C 76	1	ECQE1223JN	C:FXD FLM	0.022 UF 5% 100V
C 77	1	ECQV1H224JZ	C:FXD FLM	0.22UF +-5% 50V
C 78	1	ECQE1225JN	C:FXD FLM	2.2U 5% 100V
C 80	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 81	1	ECEA1AU101	C:FXD AL ELECT	100UF +-20% 10V
C 82	1	ECEA1CU100	C:FXD AL ELECT	10UF +-20% 16V
C 83	1	ECEA1CU100	C:FXD AL ELECT	10UF +-20% 16V
C 91	1	ECEA1AU101	C:FXD AL ELECT	100UF +-20% 10V
C 92	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 93	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
CR 11	1	MA150TA	DIODE:SI	100MA 35V
CR 12	1	MA150TA	DIODE:SI	100MA 35V
CR 13	1	MA150TA	DIODE:SI	100MA 35V
CR 14	1	MA150TA	DIODE:SI	100MA 35V
CR 15	1	MA150TA	DIODE:SI	100MA 35V
CR 16	1	MA150TA	DIODE:SI	100MA 35V
CR 17	1	MA150TA	DIODE:SI	100MA 35V
CR 18	1	MA150TA	DIODE:SI	100MA 35V
CR 19	1	MA150TA	DIODE:SI	100MA 35V
CR 20	1	MA150TA	DIODE:SI	100MA 35V
CR 21	1	MA150TA	DIODE:SI	100MA 35V
CR 22	1	MA150TA	DIODE:SI	100MA 35V
E 2	1	5020	CARD PULLER	
E 3	1	5020	CARD PULLER	
E 131	1	ERDS2TJ682T	R:FXD CARBON	6.8K OHM 5% 1/4W
K 1	1	UDM205GA	REED RELAY	5V 42MA DPST
K 2	1	UDM205GA	REED RELAY	5V 42MA DPST
K 3	1	UDM205GA	REED RELAY	5V 42MA DPST
K 4	1	UDM205GA	REED RELAY	5V 42MA DPST
K 5	1	UDM205GA	REED RELAY	5V 42MA DPST
K 6	1	UDM205GA	REED RELAY	5V 42MA DPST
K 7	1	UDM205GA	REED RELAY	5V 42MA DPST
K 8	1	UDM205GA	REED RELAY	5V 42MA DPST

P7722A 1ST NOTCH DWG NO 4G205697-1

REF NO	QTY	PARTS NO	DESCRIPTION	
K 9	1	UDM205GA	REED RELAY	5V 42MA DPST
K 10	1	UDM205GA	REED RELAY	5V 42MA DPST
K 11	1	UDM205GA	REED RELAY	5V 42MA DPST
K 12	1	UDM205GA	REED RELAY	5V 42MA DPST
K 13	1	UDM205GA	REED RELAY	5V 42MA DPST
K 14	1	UDM205GA	REED RELAY	5V 42MA DPST
K 15	1	UDM205GA	REED RELAY	5V 42MA DPST
K 16	1	UDM205GA	REED RELAY	5V 42MA DPST
K 17	1	AE5649	REED RELAY	5V 1A-20VDC 1PDT NR
K 18	1	AE5649	REED RELAY	5V 1A-20VDC 1PDT NR
K 19	1	AE5649	REED RELAY	5V 1A-20VDC 1PDT NR
MP 69	1	4G644146-2AB	SPACER 3X25	
MP 70	1	4G644146-2AB	SPACER 3X25	
MP 71	1	4G644146-2AB	SPACER 3X25	
MP 72	1	4G644146-2AB	SPACER 3X25	
P 26	1	64P603304310	CONNECTOR:DIN 6033	64P PIN B-STYLE
P 55	1	163690-1	CONNECTOR:PIN	CIS 3P 2.5PITCH
P 56	1	163690-1	CONNECTOR:PIN	CIS 3P 2.5PITCH
Q 11	1	2SK163-MN	TSTR:FET	PC=400MW
Q 12	1	2SK163-MN	TSTR:FET	PC=400MW
Q 13	1	2SK163-MN	TSTR:FET	PC=400MW
Q 14	1	2SK163-MN	TSTR:FET	PC=400MW
Q 15	1	2SK163-MN	TSTR:FET	PC=400MW
Q 16	1	2SK163-MN	TSTR:FET	PC=400MW
Q 17	1	2SK163-MN	TSTR:FET	PC=400MW
Q 18	1	2SK163-MN	TSTR:FET	PC=400MW
Q 19	1	2SK163-MN	TSTR:FET	PC=400MW
Q 21	1	2SK163-MN	TSTR:FET	PC=400MW
Q 22	1	2SK163-MN	TSTR:FET	PC=400MW
Q 23	1	2SK163-MN	TSTR:FET	PC=400MW
Q 24	1	2SK163-MN	TSTR:FET	PC=400MW
Q 25	1	2SK163-MN	TSTR:FET	PC=400MW
Q 26	1	2SK163-MN	TSTR:FET	PC=400MW
Q 27	1	2SK163-MN	TSTR:FET	PC=400MW
Q 28	1	2SK163-MN	TSTR:FET	PC=400MW
Q 29	1	2SK163-MN	TSTR:FET	PC=400MW
Q 30	1	2SK163-MN	TSTR:FET	PC=400MW
Q 31	1	2SK163-MN	TSTR:FET	PC=400MW
R *38	1	ERO25CKF20R0	R:FXD MET FLM	20 OHM 1% 1/4W
R *46	1	ERO25CKF1211	R:FXD MET FLM	1.21K OHM 1% 1/4W
R 11	1	ERN55CC4501	R:FXD MET FLM	4.50K OHM 0.25% 1/4W

P7722A 1ST NOTCH DWG NO 4G205697-1

REF NO	QTY	PARTS NO	DESCRIPTION	
R 12	1	ERN55CC4500	F:FXD MET FLM	450 OHM 0.25% 1/4W
R 13	1	ERN55CC50R0	F:FXD MET FLM	50.0 OHM 0.25% 1/4W
R 21	1	EROS2TKF1502	R:FXD MET FLM	15.0K OHM 1% 1/4W
R 22	1	EVMQ0GA01B12	R:VAR CERMET	100 OHM 20%
R 23	1	EROS2TKF1500	R:FXD MET FLM	150 OHM 1% 1/4W
R 24	1	ERD25TJ223V	R:FXD CARBON	22K OHM 5% 1/4W
R 25	1	EROS2TKF4991	R:FXD MET FLM	4.99K OHM 1% 1/4W
R 26	1	EROS2TKF1872	R:FXD MET FLM	18.7K OHM 1% 1/4W
R 27	1	EROS2TKF4991	R:FXD MET FLM	4.99K OHM 1% 1/4W
R 31	1	ERN55CC9950	R:FXD MET FLM	995 OHM 0.25% 1/4W
R 32	1	ERN55CC1991	R:FXD MET FLM	1.99K OHM 0.25% 1/4W
R 33	1	ERN55CC1991	R:FXD MET FLM	1.99K OHM 0.25% 1/4W
R 34	1	ERN55CC3981	R:FXD MET FLM	3.98K OHM 0.25% 1/4W
R 35	1	ERN55CC3981	R:FXD MET FLM	3.98K OHM 0.25% 1/4W
R 36	1	ERN55CC7961	F:FXD MET FLM	7.96K OHM 0.25% 1/4W
R 37	1	ERN55CC7961	F:FXD MET FLM	7.96K OHM 0.25% 1/4W
R 38	1	ERN55CC1592	R:FXD MET FLM	15.9K OHM 0.25% 1/4W
R 39	1	ERN55CC9951	R:FXD MET FLM	9.95K OHM 0.25% 1/4W
R 40	1	ERN55CC1992	R:FXD MET FLM	19.9K OHM 0.25% 1/4W
R 41	1	ERN55CC1992	R:FXD MET FLM	19.9K OHM 0.25% 1/4W
R 42	1	ERN55CC3982	R:FXD MET FLM	39.8K OHM 0.25% 1/4W
R 43	1	ERN55CC3982	R:FXD MET FLM	39.8K OHM 0.25% 1/4W
R 44	1	ERO25CHD7962	R:FXD MET FLM	79.6K OHM 0.5% 1/4W
R 45	1	ERO25CHD7962	R:FXD MET FLM	79.6K OHM 0.5% 1/4W
R 46	1	EROS2TKF1583	R:FXD MET FLM	158K OHM 1% 1/4W
R 47	1	EROS2TKF1003	R:FXD MET FLM	100K OHM 1% 1/4W
R 48	1	EROS2TKF2003	R:FXD MET FLM	200K OHM 1% 1/4W
R 49	1	EROS2TKF2003	R:FXD MET FLM	200K OHM 1% 1/4W
R 50	1	EROS2TKF4023	R:FXD MET FLM	402K OHM 1% 1/4W
R 51	1	EROS2TKF4023	R:FXD MET FLM	402K OHM 1% 1/4W
R 52	1	EROS2TKF8063	R:FXD MET FLM	806K OHM 1% 1/4W
R 53	1	EROS2TKF8063	R:FXD MET FLM	806K OHM 1% 1/4W
R 54	1	GS12B1584F	R:FXD MET GRZ	1.58M OHM 1% 1/2W
R 61	1	ERD25TJ1R0T	R:FXD CARBON	1 OHM 5% 1/4W
R 62	1	ERD25TJ1R0T	R:FXD CARBON	1 OHM 5% 1/4W
R 63	1	ERD25TJ1R2T	R:FXD CARBON	1.2 OHM 5% 1/4W
R 64	1	ERD25TJ1R2T	R:FXD CARBON	1.2 OHM 5% 1/4W
R 65	1	ERD25TJ2R2T	R:FXD CARBON	2.2 OHM 5% 1/4W
R 66	1	ERD25TJ2R2T	R:FXD CARBON	2.2 OHM 5% 1/4W
R 71	1	ERD25TJ821T	R:FXD CARBON	820 OHM 5% 1/4W
R 72	1	EROS2TKF2001	R:FXD MET FLM	2.00K OHM 1% 1/4W
R 73	1	ERO25CKF1822	R:FXD MET FLM	18.2K OHM 1% 1/4W

P7722A 1ST NOTCH DWG NO 4G205697-1

REF NO	QTY	PARTS NO	DESCRIPTION	
R 74	1	ERD25TJ102T	R:FXD CARBON	1K OHM 5% 1/4W
R 75	1	EVMQ0GA01B24	R:VAR CERMET	20K OHM 20%
R 76	1	ERD25TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 77	1	ERD25TJ102T	R:FXD CARBON	1K OHM 5% 1/4W
R 78	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 79	1	ERD25TJ104T	R:FXD CARBON	100K OHM 5% 1/4W
R 80	1	ERD25TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 81	1	ERD25TJ104T	R:FXD CARBON	100K OHM 5% 1/4W
R 82	1	EVMQ0GA01B15	R:VAR CERMET	100K OHM 20%
R 91	1	ERDS2TJ224T	R:FXD CARBON	220K OHM 5% 1/4W
R 92	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R 93	1	ERDS2TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 94	1	ERDS2TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 95	1	ERDS2TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 96	1	ERDS2TJ472T	R:FXD CARBON	4.7K OHM 5% 1/4W
R 97	1	ERDS2TJ472T	R:FXD CARBON	4.7K OHM 5% 1/4W
R 98	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 101	1	EROS2TKF4990	R:FXD MET FLM	499 OHM 1% 1/4W
R 102	1	EROS2TKF4990	R:FXD MET FLM	499 OHM 1% 1/4W
R 103	1	ERO25CKF1002	R:FXD MET FLM	10K OHM 1% 1/4W
R 104	1	ERO25CKF1002	R:FXD MET FLM	10K OHM 1% 1/4W
R 105	1	EROS2TKF3322	R:FXD MET FLM	33.2K OHM 1% 1/4W
R 106	1	EROS2TKF3322	R:FXD MET FLM	33.2K OHM 1% 1/4W
R 107	1	EROS2TKF6812	R:FXD MET FLM	68.1K OHM 1% 1/4W
R 108	1	EROS2TKF6812	R:FXD MET FLM	68.1K OHM 1% 1/4W
R 109	1	EROS2TKF6812	R:FXD MET FLM	68.1K OHM 1% 1/4W
R 110	1	EROS2TKF6812	R:FXD MET FLM	68.1K OHM 1% 1/4W
R 110	1	ERO25CKF1002	R:FXD MET FLM	10K OHM 1% 1/4W
R 111	1	ERO25CKF1333	R:FXD MET FLM	133K OHM 1% 1/4W
R 112	1	ERO25CKF1333	R:FXD MET FLM	133K OHM 1% 1/4W
R 113	1	ERD25TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 114	1	ERDS2TJ473T	R:FXD CARBON	47K OHM 5% 1/4W
R 115	1	EVMQ1GA01B15	R:VAR CERMET	100K OHM 20%
R 116	1	ERD25TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 117	1	ERDS2TJ473T	R:FXD CARBON	47K OHM 5% 1/4W
R 118	1	EVMQ1GA01B15	R:VAR CERMET	100K OHM 20%
R 119	1	ERD25TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 120	1	ERD25TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 132	1	ERDS2TJ562T	R:FXD CARBON	5.6K OHM 5% 1/4W
R 133	1	EROS2TKF3012	R:FXD MET FLM	30.1K OHM 1% 1/4W
R 134	1	EROS2TKF4751	R:FXD MET FLM	4.75K OHM 1% 1/4W
R 135	1	ERD25TJ682T	R:FXD CARBON	6.8K OHM 5% 1/4W

P7722A 1ST NOTCH DWG NO 4G205697-1

REF NO	QTY	PARTS NO	DESCRIPTION	
R 136	1	ERD25TJ123T	R:FXD CARBON	12K OHM 5% 1/4W
R 137	1	ERD25TJ302T	R:FXD CARBON	3K OHM 5% 1/4W
R 138	1	EROS2TKF2211	R:FXD MET FLM	2.21K OHM 1% 1/4W
R 139	1	EROS2TKF2211	R:FXD MET FLM	2.21K OHM 1% 1/4W
R 140	1	EROS2TKF2212	R:FXD MET FLM	22.1K OHM 1% 1/4W
R 141	1	EROS2TKF2212	R:FXD MET FLM	22.1K OHM 1% 1/4W
R 142	1	EROS2TKF2212	R:FXD MET FLM	22.1K OHM 1% 1/4W
R 143	1	EROS2TKF2212	R:FXD MET FLM	22.1K OHM 1% 1/4W
R 153	1	EROS2TKF3012	R:FXD MET FLM	30.1K OHM 1% 1/4W
R 154	1	EROS2TKF4751	R:FXD MET FLM	4.75K OHM 1% 1/4W
R 155	1	ERD25TJ682T	R:FXD CARBON	6.8K OHM 5% 1/4W
R 156	1	ERD25TJ123T	R:FXD CARBON	12K OHM 5% 1/4W
R 157	1	ERD25TJ302T	R:FXD CARBON	3K OHM 5% 1/4W
R 158	1	EROS2TKF2211	R:FXD MET FLM	2.21K OHM 1% 1/4W
R 159	1	EROS2TKF2211	R:FXD MET FLM	2.21K OHM 1% 1/4W
R 160	1	EROS2TKF2212	R:FXD MET FLM	22.1K OHM 1% 1/4W
R 161	1	EROS2TKF2212	R:FXD MET FLM	22.1K OHM 1% 1/4W
R 162	1	EROS2TKF2212	R:FXD MET FLM	22.1K OHM 1% 1/4W
R 163	1	EROS2TKF2212	R:FXD MET FLM	22.1K OHM 1% 1/4W
R 164	1	EVMQ0GA01B52	R:VAR CERMET	500 OHM 20%
R 165	1	ERD25TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 166	1	ERD25TJ512V	R:FXD CARBON	5.1K OHM 5% 1/4W
R 171	1	ERD25TJ334T	R:FXD CARBON	330K OHM 5% 1/4W
R 172	1	ERD25TJ362T	R:FXD CARBON	3.6K OHM 5% 1/4W
R 173	1	ERD25TJ752T	R:FXD CARBON	7.5K OHM 5% 1/4W
R 174	1	ERD25TJ153T	R:FXD CARBON	15K OHM 5% 1/4W
R 175	1	ERD25TJ303T	R:FXD CARBON	30K OHM 5% 1/4W
R 176	1	ERD25TJ363T	R:FXD CARBON	36K OHM 5% 1/4W
R 181	1	EXBP88103M	R:NETWORK	10K OHM X8 20% 1/8W
R 182	1	ERD25TJ123T	R:FXD CARBON	12K OHM 5% 1/4W
R 183	1	ERD25TJ222T	R:FXD CARBON	2.2K OHM 5% 1/4W
R 184	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 185	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 186	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 187	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 188	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 189	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 190	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 191	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 192	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 193	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 194	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W

P7722A 1ST NOTCH DWG NO 4G205697-1

REF NO	QTY	PARTS NO	DESCRIPTION	
R 195	1	ERD25TJ330V	R:FXD CARBON	33 OHM 5% 1/4W
R 196	1	ERD25TJ470V	R:FXD CARBON	47 OHM 5% 1/4W
U 11	1	NE5532A	IC:OP AMP	DUAL LOW-NOISE OP AMP
U 12	1	NE5534AP	IC:OP AMP	LOW NOISE
U 13	1	NJM082BD-A	IC:OP AMP	BI-FET DUAL
U 14	1	UPC807C	IC:OP AMP	HIGHT SPEED
U 15	1	UPC4556C	IC:LINEAR	IC OP AMP
U 16	1	NJM082BD-A	IC:OP AMP	BI-FET DUAL
U 17	1	AN6914	IC:LINEAR	DUAL COMPARATOR
U 18	1	NJM082BD-A	IC:OP AMP	BI-FET DUAL
U 20	1	NJM082BD-A	IC:OP AMP	BI-FET DUAL
U 21	1	MC1495L	IC:MULTIPLIER	FOUR-QUADRANT
U 22	1	MC1495L	IC:MULTIPLIER	FOUR-QUADRANT
U 23	1	MN6631A	IC:C MOS	ANALOG SWICH
U 24	1	AN6914	IC:LINEAR	DUAL COMPARATOR
U 25	1	AN6912	IC:LINEAR	QUAD COMPARATOR
U 26	1	TD62307P	IC:DRIVER	7LINE RELAY DRIVER
U 27	1	TD62307P	IC:DRIVER	7LINE RELAY DRIVER
U 28	1	TD62307P	IC:DRIVER	7LINE RELAY DRIVER
U 29	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 30	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 31	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
VR 11	1	RD6.2EB2	DIODE:ZENER	6.0V 500MW
VR 12	1	RD6.2EB2	DIODE:ZENER	6.0V 500MW
VR 13	1	RD10EB3	DIODE:ZENER	9.8V 500MW
VR 14	1	RD10EB3	DIODE:ZENER	9.8V 500MW
VR 15	1	RD10EB3	DIODE:ZENER	9.8V 500MW
VR 16	1	RD10EB3	DIODE:ZENER	9.8V 500MW
XU 14	1	DILB8P-8J	IC SOCKET	8-PIN DIL

P7722A 2ND NOTCH DWG NO 4G205698-1

REF NO	QTY	PARTS NO	DESCRIPTION	
C 11	1	ECV1ZW60X53T	C:VAR CER	60PF-7PF 250V
C 12	1	ECQP1392FZ	C:FXD FLM	3900PF 1% 100V
C 13	1	ECV1ZW60X53T	C:VAR CER	60PF-7PF 250V
C 14	1	ECQP1392FZ	C:FXD FLM	3900PF 1% 100V
C 15	1	ECQP1363FZ	C:FXD FLM	0.036UF 1% 100V
C 16	1	ECQP1363FZ	C:FXD FLM	0.036UF 1% 100V
C 17	1	ECQP1364FZ	C:FXD FLM	0.36UF 1% 100V
C 18	1	ECQP1364FZ	C:FXD FLM	0.36UF 1% 100V
C 19	1	MS271H3504G	C:FXD FLM	3.5 UF 2% 50V
C 20	1	ECQP1104FZ	C:FXD FLM	0.1UF 1% 100V
C 21	1	MS271H3504G	C:FXD FLM	3.5 UF 2% 50V
C 22	1	ECQP1104FZ	C:FXD FLM	0.1UF 1% 100V
C 23	1	ECCF1H150KC	C:FXD CER TC	15PF +-10% 50V NPO
C 24	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 25	1	ECQP1331JZ	C:FXD FLM	330PF +-5% 100V
C 31	1	ECQV1H224JZ	C:FXD FLM	0.22UF +-5% 50V
C 32	1	ECQV1H683JZ	C:FXD FLM	0.068UF +-5% 50V
C 33	1	ECQV1H333JZ	C:FXD FLM	0.033UF +-5% 50V
C 34	1	ECQV1H333JZ	C:FXD FLM	0.033UF +-5% 50V
C 35	1	ECQV1H224JZ	C:FXD FLM	0.22UF +-5% 50V
C 36	1	ECQV1H683JZ	C:FXD FLM	0.068UF +-5% 50V
C 37	1	ECQV1H333JZ	C:FXD FLM	0.033UF +-5% 50V
C 41	1	ECQP1471GZ	C:FXD FLM	470PF 2% 100V
C 42	1	ECQP1101JZ	C:FXD FLM	100PF 5% 100V
C 43	1	ECQP1751FZ	C:FXD FLM	750PF +-1% 100V
C 44	1	ECQP1182FZ	C:FXD FLM	1800PF 1% 100V
C 45	1	ECCF1H390KC	C:FXD CER TC	39PF +-10% 50V NPO
C 46	1	ECQP1561GZ	C:FXD FLM	560PF 2% 100V
C 47	1	ECQP1102FZ	C:FXD FLM	1000PF 1% 100V
C 48	1	ECCF1H220KC	C:FXD CER TC	22PF +-10% 50V NPO
C 51	1	ECQP1102FZ	C:FXD FLM	1000PF 1% 100V
C 52	1	ECQV1H104JZ	C:FXD FLM	0.1UF +-5% 50V
C 53	1	ECQV1H104JZ	C:FXD FLM	0.1UF +-5% 50V
C 54	1	ECQV1H104JZ	C:FXD FLM	0.1UF +-5% 50V
C 55	1	ECQP1751FZ	C:FXD FLM	750PF +-1% 100V
C 56	1	ECQV1H104JZ	C:FXD FLM	0.1UF +-5% 50V
C 57	1	ECEA1CU470	C:FXD AL ELECT	47UF +-20% 16V
C 61	1	ECCF1H080DC	C:FXD CER TC	8PF +-0.5PF 50V NPO
C 62	1	ECCF1H180KC	C:FXD CER TC	18PF +-10% 50V NPO
C 63	1	ECEA1CU100	C:FXD AL ELECT	10UF +-20% 16V
C 65	1	ECEA1CU470	C:FXD AL ELECT	47UF +-20% 16V
C 66	1	ECEA1CU470	C:FXD AL ELECT	47UF +-20% 16V

P7722A 2ND NOTCH DWG NO 4G205698-1

REF NO	QTY	PARTS NO	DESCRIPTION	
C 67	1	ECEA1CU100	C:FXD AL ELECT	10UF +-20% 16V
C 68	1	ECEA1CU100	C:FXD AL ELECT	10UF +-20% 16V
C 69	1	ECEA1CU100	C:FXD AL ELECT	10UF +-20% 16V
C 71	1	ECCF1H151KC	C:FXD CER TC	150PF +-10% 50V NPO
C 72	1	ECCF1H050DC	C:FXD CER TC	5PF +-0.5PF 50V NPO
C 73	1	ECQV1H474JZ	C:FXD FLM	0.47UF +-5% 50V
C 74	1	ECEA1HU4R7	C:FXD AL ELECT	4.7UF +-20% 50V
C 75	1	ECCF1H151KC	C:FXD CER TC	150PF +-10% 50V NPO
C 76	1	ECCF1H050DC	C:FXD CER TC	5PF +-0.5PF 50V NPO
C 77	1	ECEA1CU100	C:FXD AL ELECT	10UF +-20% 16V
C 78	1	ECEA1CU100	C:FXD AL ELECT	10UF +-20% 16V
C 79	1	ECEA1CU100	C:FXD AL ELECT	10UF +-20% 16V
C 81	1	ECQE1223JN	C:FXD FLM	0.022 UF 5% 100V
C 82	1	ECQV1H224JZ	C:FXD FLM	0.22UF +-5% 50V
C 83	1	ECQV1H154JZ	C:FXD FLM	0.15UF +-5% 50V
C 85	1	ECEA1CU100	C:FXD AL ELECT	10UF +-20% 16V
C 86	1	ECEA1CU100	C:FXD AL ELECT	10UF +-20% 16V
C 87	1	ECEA1CU100	C:FXD AL ELECT	10UF +-20% 16V
C 88	1	ECEA1CU100	C:FXD AL ELECT	10UF +-20% 16V
C 91	1	ECEA1AU101	C:FXD AL ELECT	100UF +-20% 10V
C 92	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 93	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 94	1	ECEA1AU101	C:FXD AL ELECT	100UF +-20% 10V
CR 11	1	MA150TA	DIODE:SI	100MA 35V
CR 12	1	MA150TA	DIODE:SI	100MA 35V
CR 13	1	1SS101	DIODE:SI SCHOTTKY	15MA 70V
CR 14	1	1SS101	DIODE:SI SCHOTTKY	15MA 70V
E 2	1	5020	CARD PULLER	
E 3	1	5020	CARD PULLER	
J 1	1	65507-102	CONNECTOR:PIN	2P SINGLE 2.54PITCH
K 1	1	UDM205GA	REED RELAY	5V 42MA DPST
K 2	1	UDM205GA	REED RELAY	5V 42MA DPST
K 3	1	UDM205GA	REED RELAY	5V 42MA DPST
K 4	1	UDM205GA	REED RELAY	5V 42MA DPST
MP 73	1	4G644146-2AB	SPACER 3X25	
MP 74	1	4G644146-2AB	SPACER 3X25	
MP 75	1	4G644146-2AB	SPACER 3X25	
MP 76	1	4G644146-2AB	SPACER 3X25	
MP 163	1	4G617710-0BB	P7722A PLATE:SHIELD-3	

P7722A 2ND NOTCH DWG NO 4G205698-1

REF NO	QTY	PARTS NO	DESCRIPTION	
MP 166	1	4G617560-0BB	P8190A PLATE:SHILED-3	
P 1	1	65474-001	CONNECTOR:PIN	2P
P 27	1	64P603304310	CONNECTOR:DIN 6033	64P PIN B-STYLE
P 57	1	163690-1	CONNECTOR:PIN	CIS 3P 2.5PITCH
P 58	1	163690-1	CONNECTOR:PIN	CIS 3P 2.5PITCH
R 11	1	EROS2TKF4991	R:FXD MET FLM	4.99K OHM 1% 1/4W
R 12	1	EVMQ0GA01B13	R:VAR CERMET	1K OHM 20% 0.5W
R 13	1	ERO25CKF1002	R:FXD MET FLM	10K OHM 1% 1/4W
R 14	1	EROS2TKF4991	R:FXD MET FLM	4.99K OHM 1% 1/4W
R 15	1	EROS2TKF9310	R:FXD MET FLM	931 OHM 1% 1/4W
R 21	1	ERO25CKF4320	R:FXD MET FLM	432 OHM 1% 1/4W
R 22	1	ERO25CKF4320	R:FXD MET FLM	432 OHM 1% 1/4W
R 23	1	EROS2TKF9310	R:FXD MET FLM	931 OHM 1% 1/4W
R 24	1	EROS2TKF9310	R:FXD MET FLM	931 OHM 1% 1/4W
R 25	1	ERO25CHD1931	R:FXD MET FLM	1.93K OHM 0.5% 1/4W
R 26	1	ERO25CHD1931	R:FXD MET FLM	1.93K OHM 0.5% 1/4W
R 27	1	EROS2TKF3921	R:FXD MET FLM	3.92K OHM 1% 1/4W
R 28	1	EROS2TKF3921	R:FXD MET FLM	3.92K OHM 1% 1/4W
R 29	1	ERO25CHD4931	R:FXD MET FLM	4.93K OHM 0.5% 1/4W
R 30	1	ERO25CHD4931	R:FXD MET FLM	4.93K OHM 0.5% 1/4W
R 31	1	ERO25CKF1002	R:FXD MET FLM	10K OHM 1% 1/4W
R 32	1	ERO25CKF1002	R:FXD MET FLM	10K OHM 1% 1/4W
R 33	1	EROS2TKF2002	R:FXD MET FLM	20.0K OHM 1% 1/4W
R 34	1	EROS2TKF2002	R:FXD MET FLM	20.0K OHM 1% 1/4W
R 35	1	EROS2TKF4022	R:FXD MET FLM	40.2K OHM 1% 1/4W
R 36	1	EROS2TKF4022	R:FXD MET FLM	40.2K OHM 1% 1/4W
R 37	1	EROS2TKF4992	R:FXD MET FLM	49.9K OHM 1% 1/4W
R 38	1	EROS2TKF4992	R:FXD MET FLM	49.9K OHM 1% 1/4W
R 39	1	EROS2TKF1003	R:FXD MET FLM	100K OHM 1% 1/4W
R 40	1	EROS2TKF1003	R:FXD MET FLM	100K OHM 1% 1/4W
R 41	1	EROS2TKF2003	R.FXD MET FLM	200K OHM 1% 1/4W
R 42	1	EROS2TKF2003	R:FXD MET FLM	200K OHM 1% 1/4W
R 43	1	EROS2TKF4023	R:FXD MET FLM	402K OHM 1% 1/4W
R 44	1	EROS2TKF4023	R:FXD MET FLM	402K OHM 1% 1/4W
R 53	1	ERDS2TJ1R2T	R:FXD CARBON	1.2 OHM 5% 1/4W
R 54	1	ERDS2TJ1R2T	R:FXD CARBON	1.2 OHM 5% 1/4W
R 55	1	ERDS2TJ4R7T	R:FXD CARBON	4.7 OHM 5% 1/4W
R 56	1	ERDS2TJ4R7T	R:FXD CARBON	4.7 OHM 5% 1/4W
R 57	1	ERD25TJ102T	R:FXD CARBON	1K OHM 5% 1/4W
R 58	1	EROS2TKF1001	R:FXD MET FLM	1K OHM 1% 1/4W
R 59	1	EROS2TKF4991	R:FXD MET FLM	4.99K OHM 1% 1/4W

P7722A 2ND NOTCH DWG NO 4G205698-1

REF NO	QTY	PARTS NO	DESCRIPTION	
R 60	1	ERD25TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 61	1	EVMQ0GA01B24	R:VAR CERMET	20K OHM 20%
R 62	1	ERD25TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 63	1	ERD25TJ512T	R:FXD CARBON	5.1K OHM 5% 1/4W
R 71	1	ERO25CKF1503	R:FXD MET FLM	150K OHM 1% 1/4W
R 72	1	EROS2TKF1003	R:FXD MET FLM	100K OHM 1% 1/4W
R 73	1	EROS2TKF3401	R:FXD MET FLM	3.40K OHM 1% 1/4W
R 74	1	EROS2TKF8661	R:FXD MET FLM	8.66K OHM 1% 1/4W
R 75	1	EROS2TKF3013	R:FXD MET FLM	301K OHM 1% 1/4W
R 76	1	EROS2TKF2003	R:FXD MET FLM	200K OHM 1% 1/4W
R 77	1	EROS2TKF5902	R:FXD MET FLM	59.0K OHM 1% 1/4W
R 78	1	ERD25TJ104T	R:FXD CARBON	100K OHM 5% 1/4W
R 79	1	ERD25TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 80	1	EVMQ1GA01B15	R:VAR CERMET	100K OHM 20%
R 81	1	ERD25TJ225T	R:FXD CARBON	2.2M OHM 5% 1/4W
R 85	1	ERDS2TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 91	1	ERD25TJ681V	R:FXD CARBON	680 OHM 5% 1/4W
R 92	1	ERD25TJ681T	R:FXD CARBON	680 OHM 5% 1/4W
R 93	1	ERO25CKF1002	R:FXD MET FLM	10K OHM 1% 1/4W
R 94	1	ERO25CKF1002	R:FXD MET FLM	10K OHM 1% 1/4W
R 95	1	ERO25CKF1002	R:FXD MET FLM	10K OHM 1% 1/4W
R 96	1	EROS2TKF4991	R:FXD MET FLM	4.99K OHM 1% 1/4W
R 97	1	EROS2TKF4991	R:FXD MET FLM	4.99K OHM 1% 1/4W
R 98	1	EROS2TKF4991	R:FXD MET FLM	4.99K OHM 1% 1/4W
R 101	1	EROS2TKF6042	R:FXD MET FLM	60.4K OHM 1% 1/4W
R 102	1	ERO25CKF1822	R:FXD MET FLM	18.2K OHM 1% 1/4W
R 103	1	EROS2TKF5621	R:FXD MET FLM	5.62K OHM 1% 1/4W
R 104	1	EROS2TKF5621	R:FXD MET FLM	5.62K OHM 1% 1/4W
R 105	1	EROS2TKF6042	R:FXD MET FLM	60.4K OHM 1% 1/4W
R 106	1	EROS2TKF2152	R:FXD MET FLM	21.5K OHM 1% 1/4W
R 107	1	EROS2TKF5230	R:FXD MET FLM	523 OHM 1% 1/4W
R 108	1	ERD25TJ104V	R:FXD CARBON	100K OHM 5% 1/4W
R 109	1	EVMQ1GA01B15	R:VAR CERMET	100K OHM 20%
R 110	1	EVMQ1GA01B13	R:VAR CERMET	1K OHM 20%
R 111	1	ERO25CKF1002	R:FXD MET FLM	10K OHM 1% 1/4W
R 112	1	ERD25TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 113	1	ERD25TJ681V	R:FXD CARBON	680 OHM 5% 1/4W
R 121	1	ERN55CC4951	R:FXD MET FLM	4.95K OHM 0.25% 1/4W
R 122	1	ERN55CC50R0	F:FXD MET FLM	50.0 OHM 0.25% 1/4W
R 123	1	ERD25TJ510T	R:FXD CARBON	51 OHM 5% 1/4W
R 124	1	EROS2TKF4990	R:FXD MET FLM	499 OHM 1% 1/4W
R 125	1	EROS2TKF4531	R:FXD MET FLM	4.53K OHM 1% 1/4W

P7722A 2ND NOTCH DWG NO 4G205698-1

REF NO	QTY	PARTS NO	DESCRIPTION	
R 126	1	ERD25TJ104T	R:FXD CARBON	100K OHM 5% 1/4W
R 127	1	EVMQ1GA01B15	R:VAR CERMET	100K OHM 20%
R 131	1	ERN55CC5001	R:FXD MET FLM	5K OHM 0.25% 1/4W
R 132	1	ERN55CC5550	R:FXD MET FLM	550 OHM 0.25% 1/4W
R 133	1	ERD25TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 134	1	EROS2TKF4990	R:FXD MET FLM	499 OHM 1% 1/4W
R 135	1	EROS2TKF4531	R:FXD MET FLM	4.53K OHM 1% 1/4W
R 136	1	ERD25TJ104T	R:FXD CARBON	100K OHM 5% 1/4W
R 137	1	EVMQ1GA01B15	R:VAR CERMET	100K OHM 20%
R 141	1	ERD25TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 142	1	EROS2TKF1001	R:FXD MET FLM	1K OHM 1% 1/4W
R 143	1	EROS2TKF8661	R:FXD MET FLM	8.66K OHM 1% 1/4W
R 144	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 145	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 151	1	ERO25CKF1002	R:FXD MET FLM	10K OHM 1% 1/4W
R 152	1	ERD25TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 153	1	ERO25CKF1002	R:FXD MET FLM	10K OHM 1% 1/4W
R 154	1	ERO25CKF1002	R:FXD MET FLM	10K OHM 1% 1/4W
R 155	1	EROS2TKF2002	R:FXD MET FLM	20.0K OHM 1% 1/4W
R 161	1	EVMQ0GA01B13	R:VAR CERMET	1K OHM 20% 0 5W
R 162	1	ERD25TJ241T	R:FXD CARBON	240 OHM 5% 1/4W
R 163	1	ERD25TJ104T	R:FXD CARBON	100K OHM 5% 1/4W
R 164	1	EVMQ1GA01B15	R:VAR CERMET	100K OHM 20%
R 165	1	EROS2TKF2212	R:FXD MET FLM	22.1K OHM 1% 1/4W
R 171	1	EROS2TKF2212	R:FXD MET FLM	22.1K OHM 1% 1/4W
R 172	1	EVMQ1GA01B14	R:VAR CERMET	10K OHM 20%
R 173	1	ERD25TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 174	1	ERD25TJ104T	R:FXD CARBON	100K OHM 5% 1/4W
R 175	1	EVMQ1GA01B15	R:VAR CERMET	100K OHM 20%
R 181	1	ERO25CKF1002	R:FXD MET FLM	10K OHM 1% 1/4W,
R 182	1	EROS2TKF4023	R:FXD MET FLM	402K OHM 1% 1/4W
R 183	1	EROS2TKF4023	R:FXD MET FLM	402K OHM 1% 1/4W
R 184	1	EROS2TKF3922	R:FXD MET FLM	39.2K OHM 1% 1/4W
R 185	1	EROS2TKF3922	R:FXD MET FLM	39.2K OHM 1% 1/4W
R 188	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 189	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 190	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 191	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 192	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 193	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 194	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 195	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W

P7722A 2ND NOTCH DWG NO 4G205698-1

REF NO	QTY	PARTS NO	DESCRIPTION	
R 196	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 197	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 198	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 199	1	ERD25TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
U 11	1	NE5534AP	IC:OP AMP	LOW NOISE
U 12	1	HI1201-5	IC:C MOS	QUAD SPST ANALOG SWITCH
U 13	1	HI1201-5	IC:C MOS	QUAD SPST ANALOG SWITCH
U 14	1	HI1201-5	IC:C MOS	QUAD SPST ANALOG SWITCH
U 15	1	HI1201-5	IC:C MOS	QUAD SPST ANALOG SWITCH
U 16	1	HI1201-5	IC:C MOS	QUAD SPST ANALOG SWITCH
U 17	1	HI1201-5	IC:C MOS	QUAD SPST ANALOG SWITCH
U 18	1	NJM082BD-A	IC:OP AMP	BI-FET DUAL
U 19	1	UPC807C	IC:OP AMP	HIGHT SPEED
U 20	1	MN6631	IC:C MOS	ANALOG SWITCH
U 21	1	NJM082BD-A	IC:OP AMP	BI-FET DUAL
U 22	1	NJM082BD-A	IC:OP AMP	BI-FET DUAL
U 23	1	NJM082BD-A	IC:OP AMP	BI-FET DUAL
U 24	1	TL191CN	IC:ANALOG SWITCHES	RDS=300 OHM MAX
U 25	1	NE5532A	IC:OP AMP	DUAL LOW-NOISE OP AMP
U 26	1	MN6631	IC:C MOS	ANALOG SWITCH
U 27	1	UPC807C	IC:OP AMP	HIGHT SPEED
U 28	1	UPC157C	IC:OP AMP	
U 29	1	AD536AJH	IC:RMS-DC CONV	0.5% CAN TYPE
U 30	1	UPC157C	IC:OP AMP	
U 31	1	TL604CP	IC:ANALOG SW	INPUT LEVEL +-10V MAX
U 32	1	HI1201-5	IC:C MOS	QUAD SPST ANALOG SWITCH
U 33	1	NJM082BD-A	IC:OP AMP	BI-FET DUAL
U 41	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 42	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 43	1	TD62306P	IC:DRIVER	6LINE RELAY DRIVER
U 44	1	CMOS4069UBP	IC:C MOS	HEX INVERTER
U 45	1	CMOS4069UBP	IC:C MOS	HEX INVERTER
U 46	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 47	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
XU 19	1	DILB8P-8J	IC SOCKET	8-PIN DIL

P7722A DIGITAL MOTHER DWG NO 4G205699

REF NO	QTY	PARTS NO	DESCRIPTION	
B 2	1	FBP06B12L	FAN MOTOR	BRUSHLESS DC12V 0.12A
C 1	1	4G440451	P8180A C:FXD CER	220PF FEED-THRU
C 2	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 3	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 4	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 5	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 6	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 7	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 8	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 9	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 10	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 11	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 12	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 13	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 14	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 15	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 16	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 17	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 18	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 19	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 20	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 21	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 22	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 23	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 24	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 25	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 26	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 27	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 28	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 29	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 30	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 31	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 32	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 33	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 34	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 35	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 36	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 37	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 38	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 39	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 40	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V

P7722A DIGITAL MOTHER DWG NO 4G205699

REF NO	QTY	PARTS NO	DESCRIPTION	
C 41	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 42	1	4G440501	C:FXD CER FEED-THRU	.3300PF 50V
C 43	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 44	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 45	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 46	1	4G440501	C:FXD CER FEED-THRU	3300PF 50V
C 50	1	ECEA0JK221	C:FXD AL ELECT	220UF +-20% 6.3V
C 51	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 52	1	ECEA0JK221	C:FXD AL ELECT	220UF +-20% 6.3V
C 53	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 54	1	ECEA0JK221	C:FXD AL ELECT	220UF +-20% 6.3V
C 55	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 56	1	ECEA0JK221	C:FXD AL ELECT	220UF +-20% 6.3V
C 57	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 58	1	ECEA0JK221	C:FXD AL ELECT	220UF +-20% 6.3V
C 59	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 60	1	ECEA0JK221	C:FXD AL ELECT	220UF +-20% 6.3V
C 61	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
E 3	1	50-1010	PC GUIDE	L=79.7MM
E 4	1	50-1010	PC GUIDE	L=79.7MM
E 5	1	50-1010	PC GUIDE	L=79.7MM
E 6	1	50-1010	PC GUIDE	L=79.7MM
E 7	1	50-1010	PC GUIDE	L=79.7MM
E 8	1	50-1010	PC GUIDE	L=79.7MM
E 9	1	50-1010	PC GUIDE	L=79.7MM
E 10	1	50-1010	PC GUIDE	L=79.7MM
E 11	1	50-1010	PC GUIDE	L=79.7MM
E 12	1	50-1010	PC GUIDE	L=79.7MM
FL 1	1	ZFN5103A	FL:FEED-THRU	
FL 2	1	ZFN5103A	FL:FEED-THRU	
FL 3	1	ZFN5103A	FL:FEED-THRU	
FL 4	1	ZFN5103A	FL:FEED-THRU	
J 11	1	4G470851	P8253A CONNECTOR	57LE-20240-7700-D35G
J 101	1	64S603304312	CONNECTOR:DIN 6033	64P SOCKET B-STYLE
J 102	1	64S603304312	CONNECTOR:DIN 6033	64P SOCKET B-STYLE
J 103	1	64S603304312	CONNECTOR:DIN 6033	64P SOCKET B-STYLE
J 104	1	64S603304312	CONNECTOR:DIN 6033	64P SOCKET B-STYLE
J 105	1	64S603304312	CONNECTOR:DIN 6033	64P SOCKET B-STYLE

P7722A DIGITAL MOTHER DWG NO 4G205699

REF NO	QTY	PARTS NO	DESCRIPTION	
J 107	1	SLEM30S-2	CONNECTOR:ZIFLOK	30P STRAIGHT
J 108	1	SLEM20S-2	CONNECTOR:ZIFLOK	20P STRAIGHT
J 207	1	SLEM30R-2	CONNECTOR:ZIFLOK	30P RIGHT ANGLE
J 208	1	SLEM20S-2	CONNECTOR:ZIFLOK	20P STRAIGHT
J 214	1	163683-2	CONNECTOR	CIS 4P 2.5PITCH
J 224	1	SLEM30R-2	CONNECTOR:ZIFLOK	30P RIGHT ANGLE
L 1	1	SN8S500	COIL:CHOKE	2A
L 2	1	SN8S500	COIL:CHOKE	2A
L 3	1	SN8S500	COIL:CHOKE	2A
MP 3	1	4G617646-0AB	P7722A PLATE:TERMINAL-2	
MP 30	1	4G617428-1AB	P8253A CAP:CPU CASE,REAR	
MP 31	1	4G617435-0WB	P8253A CAP:GP-IB CONN	
MP 40	1	4G617645-0AB	P7722A PLATE:TERMINAL-1	
P 36	1	163690-8	CONNECTOR:PIN	CIS 10P 2.5PITCH
P 107	1	4G470962-1	CABLE:CARD	SMCD-30-30-BD
P 108	1	4G470963-1	CABLE:CARD	SMCD-20-200-BD
P 111	1	163690-8	CONNECTOR:PIN	CIS 10P 2.5PITCH
P 112	1	163690-2	CONNECTOR:PIN	CIS 4P 2.5PITCH
P 114	1	163690-1	CONNECTOR:PIN	CIS 3P 2.5PITCH
R 1	1	ERDS2TJ102T	R:FXD CARBON	1K OHM 5% 1/4W
R 2	1	ERDS2TJ102T	R:FXD CARBON	1K OHM 5% 1/4W
R 3	1	ERDS2TJ102T	R:FXD CARBON	1K OHM 5% 1/4W
R 4	1	ERDS2TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 5	1	ERDS2TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 6	1	ERDS2TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 7	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 7	1	ERDS2TJ470T	R:FXD CARBON	47 OHM 5% 1/4W
R 8	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 8	1	ERDS2TJ470T	R:FXD CARBON	47 OHM 5% 1/4W
R 9	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 10	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 11	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 12	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 13	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 14	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 15	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 16	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 17	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 18	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 19	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W

P7722A DIGITAL MOTHER DWG NO 4G205699

REF NO	QTY	PARTS NO	DESCRIPTION	
R 20	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 21	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 22	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 23	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 24	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 25	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 26	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 27	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 28	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 29	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 30	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 31	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 32	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 33	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 34	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 35	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 36	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W

P7722A A/D CONVERTER DWG NO 4G205700-1

REF NO	QTY	PARTS NO	DESCRIPTION	
BT 1	1	GB50-3FA1	BATTERY:NI-CAD	3.6V 50MAH
C 1	1	ECEA1CU100	C:FXD AL ELECT	10UF +-20% 16V
C 2	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 3	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 4	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 5	1	ECQP1102FZ	C:FXD FLM	1000PF 1% 100V
C 6	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 7	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 8	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 9	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 10	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 11	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 12	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 13	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 14	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 15	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 16	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 17	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
CR 1	1	MA150TA	DIODE:SI	100MA 35V
CR 2	1	MA150TA	DIODE:SI	100MA 35V
E 2	1	5020	CARD PULLER	
E 3	1	5020	CARD PULLER	
J 111	1	163683-8	CONNECTOR:PIN	CIS 10P 2.5PITCH
L 1	1	SN8S500	COIL:CHOKE	2A
MP 38	1	4G617644-1BB	P7722A HEAT SINK:DIGITAL	
MP 39	1	4G760681-0X	P7722A SHEET:HEAT SINK	
MP 45	1	4G644142-1AB	P508A SPACER,3X9	
MP 46	1	4G644142-1AB	P508A SPACER,3X9	
MP 161	1	4G644142-1AB	P508A SPACER,3X9	
MP 162	1	4G644142-1AB	P508A SPACER,3X9	
P 101	1	64P603304310	CONNECTOR:DIN 6033	64P PIN B-STYLE
P 113	1	EMCB0330A51	CONNECTOR	3P L=300MM
Q 1	1	2SK163-MN	TSTR:FET	PC=400MW
R 1	1	ERDS2TJ4R7T	R:FXD CARBON	4.7 OHM 5% 1/4W
R 2	1	ERO10CKF24R9	R:FXD MET FLM	24.9 OHM 1% 1/8W
R 3	1	ERDS2TJ751T	R:FXD CARBON	750 OHM 5% 1/4W

P7722A A/D CONVERTER DWG NO 4G205700-1

REF NO	QTY	PARTS NO	DESCRIPTION	
R 4	1	EVMQ1GA01B53	R:VAR CERMET	5K OHM 20%
R 5	1	ERDS2TJ221T	R:FXD CARBON	220 OHM 5% 1/4W
R 6	1	ERDS2TJ102T	R:FXD CARBON	1K OHM 5% 1/4W
R 7	1	ERO10CKF1002	R:FXD MET FLM	10K OHM 1% 1/8W
R 8	1	ERDS2TJ100T	R:FXD CARBON	10 OHM 5% 1/4W
R 9	1	ERDS2TJ472T	R:FXD CARBON	4.7K OHM 5% 1/4W
R 10	1	ERDS2TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 11	1	ERDS2TJ682T	R:FXD CARBON	6.8K OHM 5% 1/4W
R 12	1	ERDS2TJ332T	R:FXD CARBON	3.3K OHM 5% 1/4W
R 13	1	EXBP84104M	R:NETWORK	100K OHM X4 20% 1/8W
R 14	1	ERDS2TJ104T	R:FXD CARBON	100K OHM 5% 1/4W
R 15	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
U 1	1	EHK-MA6197A	IC:ADC	ADC 14BIT 8.5U SEC
U 2	1	HI1201-5	IC:C MOS	QUAD SPST ANALOG SWITCH
U 3	1	NE5534AP	IC:OP AMP	LOW NOISE
U 4	1	NJM082BD-A	IC:OP AMP	BI-FET DUAL
U 5	1	AN6914	IC:LINEAR	DUAL COMPARATOR
U 6	1	TC74HC74P	IC:C MOS	DUAL D-TYPE FLIP-FLOP
U 7	1	TC74HC74P	IC:C MOS	DUAL D-TYPE FLIP-FLOP
U 8	1	TC74HC08P	IC:C MOS	QUAD 2-INPUT AND GATE
U 9	1	TC74HC74P	IC:C MOS	DUAL D-TYPE FLIP-FLOP
U 10	1	TC74HC74P	IC:C MOS	DUAL D-TYPE FLIP-FLOP
U 11	1	TC74HC193P	IC:C MOS	REVERS BINARY COUNTER
U 12	1	TC74HC138P	IC:C MOS	3-TO-8 LINE DECODER
U 13	1	TC74HC161P	IC:C MOS	4BIT BINARY COUNTER
U 14	1	TC74HC08P	IC:C MOS	QUAD 2-INPUT AND GATE
U 15	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 16	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 17	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 18	1	TC74HC74P	IC:C MOS	DUAL D-TYPE FLIP-FLOP
U 19	1	TC74HC04P	IC:C MOS	HEX INVERTER
U 20	1	TC74HC164P	IC:C MOS	8-BIT SHIFT REGISTER
U 21	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 22	1	TC74HC164P	IC:C MOS	8-BIT SHIFT REGISTER
U 23	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 31	1	NE5534AP	IC:OP AMP	LOW NOISE
VR 1	1	RD5.1EB2	DIODE:ZENER	5.1V 500MW
VR 2	1	RD5.1EB2	DIODE:ZENER	5.1V 500MW
VR 3	1	RD5.1EB2	DIODE:ZENER	5.1V 500MW
XU 1	1	DILB24P-8J	IC SOCKET	24-PIN DIL

P7722A DSP DWG NO 4G205701-1

REF NO	QTY	PARTS NO	DESCRIPTION	
C 1	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 2	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 3	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 4	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 5	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 6	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 7	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 8	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 9	1	ECQP1121JZ	C:FXD FLM	120PF 5% 100V
C 10	1	ECQP1102FZ	C:FXD FLM	1000PF 1% 100V
C 11	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 12	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 13	1	ECQP1472FZ	C:FXD FLM	4700PF 1% 100V
C 14	1	ECQP1242FZ	C:FXD FLM	2400PF 1% 100V
C 15	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 16	1	ECEA1HN010S	C:FXD AL ELECT	1UF +-20% 50V
C 17	1	ECQP1911JZ	C:FXD FLM	910PF 5% 100V
C 18	1	ECQP1472FZ	C:FXD FLM	4700PF 1% 100V
C 19	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 20	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 21	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 22	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 23	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 24	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 25	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 26	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 27	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 28	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 29	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 30	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
E 2	1	5020	CARD PULLER	
E 3	1	5020	CARD PULLER	
J 112	1	163683-2	CONNECTOR	CIS 4P 2.5PITCH
L 1	1	SN8S500	COIL:CHOKE	2A
L 2	1	SN8S500	COIL:CHOKE	2A
P 102	1	64P603304310	CONNECTOR:DIN 6033	64P PIN B-STYLE
R 1	1	EXBP88103M	R:NETWORK	10K OHM X8 20% 1/8W
R 2	1	EXBP84103M	R:NETWORK	10K OHM X4 20% 1/8W
R 3	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W

P7722A DSP DWG NO 4G205701-1

REF NO	QTY	PARTS NO	DESCRIPTION	
R 4	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 5	1	EXBP84103M	R:NETWORK	10K OHM X4 20% 1/8W
R 6	1	EXBP84103M	R:NETWORK	10K OHM X4 20% 1/8W
R 7	1	EXBP84103M	R:NETWORK	10K OHM X4 20% 1/8W
R 8	1	EXBP88103M	R:NETWORK	10K OHM X8 20% 1/8W
R 9	1	EXBP88103M	R:NETWORK	10K OHM X8 20% 1/8W
R 10	1	EXBP88103M	R:NETWORK	10K OHM X8 20% 1/8W
R 11	1	ERDS2TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 12	1	ERDS2TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 13	1	ERO10CKF3011	R:FXD MET FLM	3.01K OHM 1% 1/8W
R 14	1	ERO10CKF2001	R:FXD MET FLM	2K OHM 1% 1/8W
R 15	1	ERDS2TJ100T	R:FXD CARBON	10 OHM 5% 1/4W
R 16	1	ERO10CKF1001	R:FXD MET FLM	1K OHM 1% 1/8W
R 17	1	EROS2TKF1132	R:FXD MET FLM	11.3K OHM 1% 1/4W
R 18	1	ERO10CKF1002	R:FXD MET FLM	10K OHM 1% 1/8W
R 19	1	ERO10CKF1541	R:FXD MET FLM	1.54K OHM 1% 1/8W
R 20	1	ERO10CKF4321	R:FXD MET FLM	4.32K OHM 1% 1/8W
R 21	1	ERO10CKF4321	R:FXD MET FLM	4.32K OHM 1% 1/8W
R 22	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 23	1	ERO10CKF8451	R:FXD MET FLM	8.45K OHM 1% 1/8W
R 24	1	ERO10CKF5901	R:FXD MET FLM	5.9K OHM 1% 1/8W
R 25	1	ERO10CKF5901	R:FXD MET FLM	5.9K OHM 1% 1/8W
R 26	1	ERDS2TJ100T	R:FXD CARBON	10 OHM 5% 1/4W
U *2	1	4G480649	P7722A DSP.PRG1	
U *3	1	4G480650-1	P7722A DSP.PRG2	
U 1	1	TMS32010	IC:DSP	DSP 16BIT 200N SEC
U 4	1	SN74LS138N	IC:TTL LS	3-TO-8 LINE DECODER
U 5	1	SN74LS138N	IC:TTL LS	3-TO-8 LINE DECODER
U 6	1	TC74HC74P	IC:C MOS	DUAL D-TYPE FLIP-FLOP
U 7	1	UPD446C	IC:C MOS	2KX8 STATIC RAM 200NS
U 8	1	UPD446C	IC:C MOS	2KX8 STATIC RAM 200NS
U 9	1	TC74HC193P	IC:C MOS	REVERS BINARY COUNTER
U 10	1	TC74HC193P	IC:C MOS	REVERS BINARY COUNTER
U 11	1	TC74HC193P	IC:C MOS	REVERS BINARY COUNTER
U 12	1	TC74HC193P	IC:C MOS	REVERS BINARY COUNTER
U 13	1	TC74HC193P	IC:C MOS	REVERS BINARY COUNTER
U 14	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 15	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 16	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 17	1	TC74HC257P	IC:C MOS	MULTIPLEXER

P7722A DSP DWG NO 4G205701-1

REF NO	QTY	PARTS NO	DESCRIPTION	
U 18	1	UPD446C	IC:C MOS	2KX8 STATIC RAM 200NS
U 19	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 20	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 21	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 22	1	TC74HC123P	IC:C MOS	DUAL RETRIGGERABLE M.M
U 23	1	TC74HC74P	IC:C MOS	DUAL D-TYPE FLIP-FLOP
U 24	1	TC74HC04P	IC:C MOS	HEX INVERTER
U 25	1	TC74HC08P	IC:C MOS	QUAD 2-INPUT AND GATE
U 26	1	TC74HC32P	IC:C MOS	QUAD 4-INPUT OR GATE
U 27	1	TC74HC00P	IC:C MOS	NAND GATE
U 28	1	CMOS4520BP	IC:C MOS	DUAL BINARY UP COUNTER
U 29	1	TC74HC74P	IC:C MOS	DUAL D-TYPE FLIP-FLOP
U 30	1	TC74HC08P	IC:C MOS	QUAD 2-INPUT AND GATE
U 31	1	TC74HC393P	IC:C MOS	DUAL 4BIT BINARY COUNTER
U 32	1	AD7523JN	IC:C MOS	8BIT DA CONVERTER
U 33	1	NJM082BD-A	IC:OP AMP	BI-FET DUAL
U 34	1	NJM082BD-A	IC:OP AMP	BI-FET DUAL
XU 2	1	DILB24P-8J	IC SOCKET	24-PIN DIL
XU 3	1	DILB24P-8J	IC SOCKET	24-PIN DIL

P7722A INTERFACE DWG NO 4G205702-1

REF NO	QTY	PARTS NO	DESCRIPTION	
C 1	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 2	1	ECEA1CK101	C:FXD AL ELECT	100UF +-20% 16V
C 3	1	ECEA1CK101	C:FXD AL ELECT	100UF +-20% 16V
C 4	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 5	1	ECCF1H101KC	C:FXD CER TC	100PF +-10% 50V NPO
C 6	1	ECQV1H104JZ	C:FXD FLM	0.1UF +-5% 50V
C 7	1	ECQV1H334JZ	C:FXD FLM	0.33UF +-5% 50V
C 8	1	ECEA1CK101	C:FXD AL ELECT	100UF +-20% 16V
C 10	1	ECQP1222FZ	C:FXD FLM	2200PF 1% 100V
C 11	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 12	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 13	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 14	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 15	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 16	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 17	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 18	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 19	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 20	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 21	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 22	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 23	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 24	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 25	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
CR 1	1	1SS101	DIODE:SI SCHOTTKY	15MA 70V
CR 2	1	MA150TA	DIODE:SI	100MA 35V
E 2	1	5020	CARD PULLER	
E 3	1	5020	CARD PULLER	
J 113	1	EMCS0360L	CONNECTOR:PIN	3P ANGLE
L 1	1	SN8S500	COIL:CHOKE	2A
P 103	1	64P603304310	CONNECTOR:DIN 6033	64P PIN B-STYLE
Q 1	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MHZ
Q 2	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MHZ
R 1	1	ERDS2TJ473T	R:FXD CARBON	47K OHM 5% 1/4W
R 2	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 3	1	ERDS2TJ102T	R:FXD CARBON	1K OHM 5% 1/4W
R 4	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 5	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W

P7722A INTERFACE DWG NO 4G205702-1

REF NO	QTY	PARTS NO	DESCRIPTION	
R 6	1	ERDS2TJ104T	R:FXD CARBON	100K OHM 5% 1/4W
R 7	1	ERDS2TJ152T	R:FXD CARBON	1.5K OHM 5% 1/4W
R 8	1	EXBP88103M	R:NETWORK	10K OHM X8 20% 1/8W
R 9	1	EXBP88103M	R:NETWORK	10K OHM X8 20% 1/8W
R 10	1	ERDS2TJ563T	R:FXD CARBON	56K OHM 5% 1/4W
R 11	1	ERDS2TJ102T	R:FXD CARBON	1K OHM 5% 1/4W
R 12	1	ERDS2TJ104T	R:FXD CARBON	100K OHM 5% 1/4W
R 13	1	ERDS2TJ102T	R:FXD CARBON	1K OHM 5% 1/4W
R 14	1	ERDS2TJ563T	R:FXD CARBON	56K OHM 5% 1/4W
R 15	1	ERDS2TJ102T	R:FXD CARBON	1K OHM 5% 1/4W
R 16	1	ERDS2TJ563T	R:FXD CARBON	56K OHM 5% 1/4W
R 17	1	EXBP88103M	R:NETWORK	10K OHM X8 20% 1/8W
R 18	1	EXBP88103M	R:NETWORK	10K OHM X8 20% 1/8W
U *26	1	4G480653-3	P7722A INTERF.PRG3	
U *27	1	4G480652-8	P7722A INTERFACE PROG2	
U *28	1	4G480651-8	P7722A INTERFACE PROG1	
U 1	1	TL7705CP	IC:LINEAR	SUPPLY VOLT. SUPERVISOR
U 2	1	TC74HC161P	IC:C MOS	4BIT BINARY COUNTER
U 3	1	TC74HC04P	IC:C MOS	HEX INVERTER
U 4	1	UPD7210C	IC:N MOS	GP-IB CONTROLLER
U 5	1	SN75160AN	IC:TTL	OCTAL IF-BUS TRANSCEIVER
U 6	1	UPD8085AC-2	IC:N MOS	8-BIT MICROPROCESSOR
U 7	1	SN75161AN	IC:TTL	OCTAL IF-BUS TRANSCEIVER
U 8	1	TC74HC74P	IC:C MOS	DUAL D-TYPE FLIP-FLOP
U 9	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 10	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 11	1	UPD8259AC2	IC:N MOS	PROG INTERRUPT CONTROLER
U 12	1	TC74HC373P	IC:C MOS	OCTAL BUS TRANCEIVER
U 13	1	TC74HC244P	IC:C MOS	OCTAL BUS BUFFER
U 14	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 15	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 16	1	TC74HC00P	IC:C MOS	NAND GATE
U 17	1	TC74HC125P	IC:C MOS	QUAD 3-STATE BUFFER
U 18	1	TC74HC08P	IC:C MOS	QUAD 2-INPUT AND GATE
U 19	1	TC74HC14P	IC:C MOS	HEX SCHMITT-TRIGGER INV
U 20	1	UPD8253C2	IC:N MOS	PROG INTERVAL TIMER
U 21	1	TC74HC08P	IC:C MOS	QUAD 2-INPUT AND GATE
U 22	1	TC74HC138P	IC:C MOS	3-TO-8 LINE DECODER
U 23	1	TC74HC138P	IC:C MOS	3-TO-8 LINE DECODER
U 24	1	CMOS4528BP	IC:C MOS	DUAL MOHO MULTI
U 25	1	HM6264LP-15	IC:C MOS	8K X8 STATIC RAM

P7722A INTERFACE DWG NO 4G205702-1

REF NO	QTY	PARTS NO	DESCRIPTION	
XU 26	1	DILB28P-8J	IC SOCKET	28-PIN DIL
XU 27	1	DILB28P-8J	IC SOCKET	28-PIN DIL
XU 28	1	DILB28P-8J	IC SOCKET	28-PIN DIL

P7722A MASTER DWG NO 4G205703-1

REF NO	QTY	PARTS NO	DESCRIPTION	
C 1	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 2	1	ECEA1CK101	C:FXD AL ELECT	100UF +-20% 16V
C 3	1	ECEA1CK101	C:FXD AL ELECT	100UF +-20% 16V
C 4	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 5	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 6	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 7	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 8	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 9	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 10	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 11	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 12	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 13	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 14	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 15	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 16	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 17	1	ECCF1H101KC	C:FXD CER TC	100PF +-10% 50V NPO
C 18	1	ECCF1H101KC	C:FXD CER TC	100PF +-10% 50V NPO
C 19	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 20	1	ECKF1H102KB	C:FXD CER HI-K	1000PF +-10% 50V
C 21	1	ECKF1H102KB	C:FXD CER HI-K	1000PF +-10% 50V
C 22	1	ECKF1H102KB	C:FXD CER HI-K	1000PF +-10% 50V
C 23	1	ECKF1H102KB	C:FXD CER HI-K	1000PF +-10% 50V
C 24	1	ECKF1H102KB	C:FXD CER HI-K	1000PF +-10% 50V
C 25	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 26	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 27	1	ECCF1H330KC	C:FXD CER TC	33PF +-10% 50V NPO
C 28	1	ECCF1H330KC	C:FXD CER TC	33PF +-10% 50V NPO
C 29	1	ECKF1H102KB	C:FXD CER HI-K	1000PF +-10% 50V
C 30	1	ECCF1H390KC	C:FXD CER TC	39PF +-10% 50V NPO
C 31	1	ECKF1H103MD	C:FXD CER HI-K	10000PF +-20% 50V
C 32	1	ECCF1H101KC	C:FXD CER TC	100PF +-10% 50V NPO
C 33	1	ECEA1CK101	C:FXD AL ELECT	100UF +-20% 16V
C 34	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 35	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 36	1	ECEA1CK101	C:FXD AL ELECT	100UF +-20% 16V
C 37	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 38	1	ECQV1H105JZ	C:FXD FLM	1UF +-5% 50V
C 39	1	ECEA1CK101	C:FXD AL ELECT	100UF +-20% 16V
C 40	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 41	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 42	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V

P7722A MASTER DWG NO 4G205703-1

REF NO	QTY	PARTS NO	DESCRIPTION	
C 43	1	ECEA1CK101	C:FXD AL ELECT	100UF +-20% 16V
C 44	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 45	1	ECEA1CK101	C:FXD AL ELECT	100UF +-20% 16V
C 46	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 47	1	ECEA1CK101	C:FXD AL ELECT	100UF +-20% 16V
C 48	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 49	1	ECCF1H101KC	C:FXD CER TC	100PF +-10% 50V NPO
C 50	1	ECKF1H391KB	C:FXD CER HI-K	390PF +-10% 50V
C 51	1	ECCF1H270KC	C:FXD CER TC	27PF +-10% 50V NPO
C 52	1	ECCF1H560JC	C:FXD CER TC	56PF +-5% 50V NPO
C 53	1	ECCF1H150KC	C:FXD CER TC	15PF +-10% 50V NPO
C 55	1	ECCF1H330KC	C:FXD CER TC	33PF +-10% 50V NPO
C 56	1	ECCF1H101KC	C:FXD CER TC	100PF +-10% 50V NPO
C 57	1	ECCF1H470KC	C:FXD CER TC	47PF +-10% 50V NPO
C 58	1	ECCF1H050DC	C:FXD CER TC	5PF +-0.5PF 50V NPO
C 59	1	ECCF1H120KC	C:FXD CER TC	12PF +-10% 50V NPO
C 60	1	ECV1ZW06X53T	C:VAR CER	8PF-2PF 250V
CR 2	1	MA326	DIODE:VAR CAP	20MA 32V
E 2	1	5020	CARD PULLER	
E 3	1	5020	CARD PULLER	
L 1	1	SN8S500	COIL:CHOKE	2A
L 2	1	ELEH220KA	COIL:CHOKE	22UH 10%
L 3	1	4G431374	P7722A VCO COIL	2.5T/2.5T
L 4	1	ELEH220KA	COIL:CHOKE	22UH 10%
L 5	1	ELEH2R2KA	COIL:CHOKE	2.2UH 20%
L 6	1	4G431373	P7722A 80MHZ COIL	1.5T/4.5T
L 10	1	ELEHR27MA	COIL:CHOKE	0.27UH 20%
MP 32	1	4G617454-0HB	P0164A PLATE:SHIELD	
P 104	1	64P603304310	CONNECTOR:DIN 6033	64P PIN B-STYLE
Q 1	1	2SC1215	TSTR:SI NPN	PC:200MW FT:1200MHZ
Q 2	1	2SC1215	TSTR:SI NPN	PC:200MW FT:1200MHZ
Q 3	1	2SC1215	TSTR:SI NPN	PC:200MW FT:1200MHZ
Q 4	1	2SC1215	TSTR:SI NPN	PC:200MW FT:1200MHZ
Q 5	1	2SC1215	TSTR:SI NPN	PC:200MW FT:1200MHZ
Q 6	1	2SC1215	TSTR:SI NPN	PC:200MW FT:1200MHZ
Q 7	1	2SC2671-H	TSTR:SI NPN	PC:250MW FT:2500MHZ
Q 8	1	2SC2671-H	TSTR:SI NPN	PC:250MW FT:2500MHZ
Q 9	1	2SA1206	TSTR:SI PNP	PC:600MW FT:1000MHZ

P7722A MASTER DWG NO 4G205703-1

REF NO	QTY	PARTS NO	DESCRIPTION	
Q 10	1	2SC1215	TSTR:SI NPN	PC:200MW FT:1200MHZ
R 1	1	EXBP88103M	R:NETWORK	10K OHM X8 20% 1/8W
R 2	1	EXBP88103M	R:NETWORK	10K OHM X8 20% 1/8W
R 3	1	EXBP88472J	R:NETWORK	4.7K OHM X8 5% 1/8W
R 4	1	EXBP88103M	R:NETWORK	10K OHM X8 20% 1/8W
R 5	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 6	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 7	1	ERDS2TJ153T	R:FXD CARBON	15K OHM 5% 1/4W
R 8	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 9	1	ERDS2TJ682T	R:FXD CARBON	6.8K OHM 5% 1/4W
R 10	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 11	1	ERDS2TJ153T	R:FXD CARBON	15K OHM 5% 1/4W
R 12	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 13	1	ERDS2TJ271T	R:FXD CARBON	270 OHM 5% 1/4W
R 14	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 15	1	ERDS2TJ271T	R:FXD CARBON	270 OHM 5% 1/4W
R 16	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 17	1	ERDS2TJ471T	R.FXD CARBON	470 OHM 5% 1/4W
R 18	1	ERDS2TJ100T	R:FXD CARBON	10 OHM 5% 1/4W
R 19	1	ERDS2TJ100T	R:FXD CARBON	10 OHM 5% 1/4W
R 20	1	ERDS2TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 21	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 22	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 23	1	ERDS2TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 24	1	ERDS2TJ472T	R:FXD CARBON	4.7K OHM 5% 1/4W
R 25	1	ERDS2TJ101T	R:FXD CARBON	100 OHM 5% 1/4W
R 26	1	ERDS2TJ331T	R:FXD CARBON	330 OHM 5% 1/4W
R 27	1	ERO10CKF4321	R:FXD MET FLM	4.32K OHM 1% 1/8W
R 28	1	ERO10CKF6810	R:FXD MET FLM	681 OHM 1% 1/8W
R 29	1	ERDS2TJ472T	R:FXD CARBON	4.7K OHM 5% 1/4W
R 30	1	ERDS2TJ122T	R:FXD CARBON	1.2K OHM 5% 1/4W
R 31	1	ERDS2TJ122T	R:FXD CARBON	1.2K OHM 5% 1/4W
R 32	1	ERDS2TJ822T	R:FXD CARBON	8.2K OHM 5% 1/4W
R 33	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 34	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 35	1	ERDS2TJ271T	R:FXD CARBON	270 OHM 5% 1/4W
R 36	1	ERO10CKF8250	R:FXD MET FLM	825 OHM 1% 1/8W
R 37	1	ERO10CKF2371	R:FXD MET FLM	2.37K OHM 1% 1/8W
R 38	1	ERDS2TJ271T	R:FXD CARBON	270 OHM 5% 1/4W
R 39	1	ERDS2TJ682T	R:FXD CARBON	6.8K OHM 5% 1/4W
R 40	1	ERDS2TJ682T	R:FXD CARBON	6.8K OHM 5% 1/4W

P7722A MASTER DWG NO 4G205703-1

REF NO	QTY	PARTS NO	DESCRIPTION	
R 41	1	ERDS2TJ271T	R:FXD CARBON	270 OHM 5% 1/4W
R 42	1	ERDS2TJ221T	R:FXD CARBON	220 OHM 5% 1/4W
R 43	1	ERDS2TJ221T	R:FXD CARBON	220 OHM 5% 1/4W
R 44	1	ERDS2TJ392T	R:FXD CARBON	3.9K OHM 5% 1/4W
R 45	1	ERDS2TJ223T	R:FXD CARBON	22K OHM 5% 1/4W
R 46	1	ERDS2TJ683T	R:FXD CARBON	68K OHM 5% 1/4W
U *2	1	4G481041	P7722A MASTER.PRG	
U 1	1	UPD446C-2	IC:C MOS	2KX8 STATIC RAM 200NS
U 3	1	TC74HC373P	IC:C MOS	OCTAL BUS TRANCEIVER
U 4	1	TC74HC08P	IC:C MOS	QUAD 2-INPUT AND GATE
U 5	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 7	1	UPD8085AC-2	IC:N MOS	8-BIT MICROPROCESSOR
U 8	1	TC74HC138P	IC:C MOS	3-TO-8 LINE DECODER
U 9	1	TC74HC138P	IC:C MOS	3-TO-8 LINE DECODER
U 10	1	SN74LS669N	IC:TTL LS	UP/DOWN BINARY COUNTER
U 11	1	SN74LS669N	IC:TTL LS	UP/DOWN BINARY COUNTER
U 12	1	TC74HC32P	IC:C MOS	QUAD 4-INPUT OR GATE
U 13	1	TC74HC138P	IC:C MOS	3-TO-8 LINE DECODER
U 14	1	SN74LS669N	IC:TTL LS	UP/DOWN BINARY COUNTER
U 15	1	TC74HC74P	IC:C MOS	DUAL D-TYPE FLIP-FLOP
U 16	1	TC74HC04P	IC:C MOS	HEX INVERTER
U 16	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 17	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 18	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 19	1	TC74HC32P	IC:C MOS	QUAD 4-INPUT OR GATE
U 20	1	TC74HC393P	IC:C MOS	DUAL 4BIT BINARY COUNTER
U 21	1	TC74HC161P	IC:C MOS	4BIT BINARY COUNTER
U 22	1	TC74HC74P	IC:C MOS	DUAL D-TYPE FLIP-FLOP
U 23	1	TC74HC00P	IC:C MOS	NAND GATE
U 24	1	UPB551C	IC:TTL	HIGH SPEED PRE SCALER
U 25	1	UPB555C	IC:ECL:CMOS	150MHZ PRESCALER
U 26	1	HD10131	IC:ECL	DUAL D MASTER-SLAVE F-F
U 27	1	HD10102	IC:ECL	QUAD 2-IN NOR GATE
U 28	1	RC4558P	IC:OP AMP	DUAL
U 29	1	TC5081AP	IC:C MOS	FHASE COMPARATOR
XU 2	1	DILB28P-8J	IC SOCKET	28-PIN DIL
Y 1	1	78A21	CRYSTAL:QUARTZ OSC	16MHZ (HC-18/U)

P7722A COUNTER DWG NO 4G205704-1

REF NO	QTY	PARTS NO	DESCRIPTION	
C 1	1	ECEA1CK101	C:FXD AL ELECT	100UF +-20% 16V
C 2	1	ECEA1CK101	C:FXD AL ELECT	100UF +-20% 16V
C 3	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 4	1	ECEA1CK101	C:FXD AL ELECT	100UF +-20% 16V
C 5	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 6	1	ECEA1CK101	C:FXD AL ELECT	100UF +-20% 16V
C 7	1	ECCF1H101KC	C:FXD CER TC	100PF +-10% 50V NPO
C 8	1	ECCF1H101KC	C:FXD CER TC	100PF +-10% 50V NPO
C 9	1	ECKF1H102KB	C:FXD CER HI-K	1000PF +-10% 50V
C 10	1	ECKF1H102KB	C:FXD CER HI-K	1000PF +-10% 50V
C 11	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 12	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 13	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 14	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 15	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 16	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 17	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 18	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 19	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 20	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 21	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 22	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 23	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 24	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 25	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 26	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 27	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 28	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
C 29	1	ECFF1E104ZF	C:FXD CER MULTILAYER	0.1UF +80%-20% 50V
E 2	1	5020	CARD PULLER	
E 3	1	5020	CARD PULLER	
J 114	1	163683-1	CONNECTOR:PIN	CIS 3P 2.5PITCH
L 1	1	SN8S500	COIL:CHOKE	2A
L 2	1	SN8S500	COIL:CHOKE	2A
P 105	1	64P603304310	CONNECTOR:DIN 6033	64P PIN B-STYLE
Q 1	1	2SC1215	TSTR:SI NPN	PC:200MW FT:1200MHZ
R 1	1	EXBP88103M	R:NETWORK	10K OHM X8 20% 1/8W
R 2	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W

P7722A COUNTER DWG NO 4G205704-1

REF NO	QTY	PARTS NO	DESCRIPTION	
R 3	1	ERDS2TJ682T	R:FXD CARBON	6.8K OHM 5% 1/4W
R 4	1	ERDS2TJ393T	R:FXD CARBON	39K OHM 5% 1/4W
R 5	1	ERDS2TJ222T	R:FXD CARBON	2.2K OHM 5% 1/4W
R 6	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 7	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 8	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 9	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 10	1	ERDS2TJ683T	R:FXD CARBON	68K OHM 5% 1/4W
U *42	1	4G480647-2	P7722A COUNT.PRG	
U 1	1	TC74HC393P	IC:C MOS	DUAL 4BIT BINARY COUNTER
U 2	1	TC74HC393P	IC:C MOS	DUAL 4BIT BINARY COUNTER
U 3	1	TC74HC393P	IC:C MOS	DUAL 4BIT BINARY COUNTER
U 4	1	TC74HC393P	IC:C MOS	DUAL 4BIT BINARY COUNTER
U 5	1	TC74HC393P	IC:C MOS	DUAL 4BIT BINARY COUNTER
U 6	1	TC74HC244P	IC:C MOS	OCTAL BUS BUFFER
U 7	1	TC74HC244P	IC:C MOS	OCTAL BUS BUFFER
U 8	1	TC74HC244P	IC:C MOS	OCTAL BUS BUFFER
U 9	1	TC74HC244P	IC:C MOS	OCTAL BUS BUFFER
U 10	1	TC74HC244P	IC:C MOS	OCTAL BUS BUFFER
U 11	1	TC74HC00P	IC:C MOS	NAND GATE
U 12	1	TC74HC02P	IC:C MOS	NOR GATE
U 13	1	TC74HC107P	IC:C MOS	DUAL J-K FLIP-FLOP
U 14	1	SN74ALS74N	IC:TTL ALS	DUAL D-TYPE FLIP-FROP
U 15	1	TC74HC74P	IC:C MOS	DUAL D-TYPE FLIP-FLOP
U 16	1	TC74HC74P	IC:C MOS	DUAL D-TYPE FLIP-FLOP
U 17	1	SN74LS669N	IC:TTL LS	UP/DOWN BINARY COUNTER
U 18	1	SN74LS669N	IC:TTL LS	UP/DOWN BINARY COUNTER
U 19	1	SN74LS669N	IC:TTL LS	UP/DOWN BINARY COUNTER
U 20	1	TC74HC32P	IC:C MOS	QUAD 4-INPUT OR GATE
U 21	1	TC74HC125P	IC:C MOS	QUAD 3-STATE BUFFER
U 22	1	TC74HC74P	IC:C MOS	DUAL D-TYPE FLIP-FLOP
U 23	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 24	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 25	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 26	1	TC74HC08P	IC:C MOS	QUAD 2-INPUT AND GATE
U 27	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 28	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 29	1	SN74LS669N	IC:TTL LS	UP/DOWN BINARY COUNTER
U 30	1	SN74LS669N	IC:TTL LS	UP/DOWN BINARY COUNTER
U 31	1	SN74LS669N	IC:TTL LS	UP/DOWN BINARY COUNTER
U 32	1	TC74HC04P	IC:C MOS	HEX INVERTER
U 33	1	UPB555C	IC:ECL:CMOS	150MHZ PRESCALER

P7722A COUNTER DWG NO 4G205704-1

REF NO	QTY	PARTS NO	DESCRIPTION	
U 34	1	TC74HC08P	IC:C MOS	QUAD 2-INPUT AND GATE
U 35	1	UPC271C	IC:COMPARATOR	
U 36	1	TC74HC138P	IC:C MOS	3-TO-8 LINE DECODER
U 37	1	TC74HC138P	IC:C MOS	3-TO-8 LINE DECODER
U 38	1	TC74HC138P	IC:C MOS	3-TO-8 LINE DECODER
U 39	1	TC74HC373P	IC:C MOS	OCTAL BUS TRANCEIVER
U 40	1	UPD8085AC-2	IC:N MOS	8-BIT MICROPROCESSOR
U 41	1	UPD446C	IC:C MOS	2KX8 STATIC RAM 200NS
XU 42	1	DILB28P-8J	IC SOCKET	28-PIN DIL

P7722A MAIN PANEL DWG NO 4G205705-1

REF NO	QTY	PARTS NO	DESCRIPTION	
C 1	1	ECEA1HKS2R2	C:FXD AL ELECT	2.2UF +-20% 50V
C 2	1	ECKF1H472MD	C:FXD CER HI-K	4700PF +-20% 50V
C 3	1	ECKF1H472MD	C:FXD CER HI-K	4700PF +-20% 50V
C 4	1	ECEA1CKS470	C:FXD AL ELECT	47UF +-20% 16V
C 5	1	ECKF1H103ZF	C:FXD CER HI-K	10000PF +80-20% 50V
C 6	1	ECKF1H103ZF	C:FXD CER HI-K	10000PF +80-20% 50V
C 7	1	ECEA1CKS470	C:FXD AL ELECT	47UF +-20% 16V
C 8	1	ECEA1CKS470	C:FXD AL ELECT	47UF +-20% 16V
C 9	1	ECEA1CKS470	C:FXD AL ELECT	47UF +-20% 16V
C 10	1	ECEA1CKS470	C:FXD AL ELECT	47UF +-20% 16V
C 11	1	ECEA1CKS470	C:FXD AL ELECT	47UF +-20% 16V
C 12	1	ECKF1H103ZF	C:FXD CER HI-K	10000PF +80-20% 50V
C 13	1	ECEA1CKS470	C:FXD AL ELECT	47UF +-20% 16V
C 14	1	ECKF1H103ZF	C:FXD CER HI-K	10000PF +80-20% 50V
C 15	1	ECKF1H103ZF	C:FXD CER HI-K	10000PF +80-20% 50V
C 16	1	ECEA1CKS470	C:FXD AL ELECT	47UF +-20% 16V
C 17	1	ECEA1HKS2R2	C:FXD AL ELECT	2.2UF +-20% 50V
DS	19	LN514GK	LED:7 SEGMENT	GREEN 7-SEGMENT
DS 1	1	LN514GK-1	LED:7 SEGMENT	GREEN 7-SEGMENT
DS 2	1	LN514GK-1	LED:7 SEGMENT	GREEN 7-SEGMENT
DS 3	1	LN514GK-1	LED:7 SEGMENT	GREEN 7-SEGMENT
DS 4	1	LN514GK-1	LED:7 SEGMENT	GREEN 7-SEGMENT
DS 5	1	LN514GK-1	LED:7 SEGMENT	GREEN 7-SEGMENT
DS 6	1	LN514GK-1	LED:7 SEGMENT	GREEN 7-SEGMENT
DS 7	1	LN514GK-1	LED:7 SEGMENT	GREEN 7-SEGMENT
DS 8	1	LN514GK-1	LED:7 SEGMENT	GREEN 7-SEGMENT
DS 9	1	LN514GK-1	LED:7 SEGMENT	GREEN 7-SEGMENT
DS 10	1	LN514GK-1	LED:7 SEGMENT	GREEN 7-SEGMENT
DS 11	1	LN514GK-1	LED:7 SEGMENT	GREEN 7-SEGMENT
DS 12	1	LN514GK-1	LED:7 SEGMENT	GREEN 7-SEGMENT
DS 13	1	LN514GK-1	LED:7 SEGMENT	GREEN 7-SEGMENT
DS 14	1	LN514GK-1	LED:7 SEGMENT	GREEN 7-SEGMENT
DS 15	1	LN514GK-1	LED:7 SEGMENT	GREEN 7-SEGMENT
DS 16	1	LN514GK-1	LED:7 SEGMENT	GREEN 7-SEGMENT
DS 17	1	LN514GK-1	LED:7 SEGMENT	GREEN 7-SEGMENT
DS 18	1	LN514GK-1	LED:7 SEGMENT	GREEN 7-SEGMENT
DS 19	1	LN514GK-1	LED:7 SEGMENT	GREEN 7-SEGMENT
DS 20	1	LN230RPP	LED	
DS 21	1	LN230RPP	LED	
DS 22	1	LN430YPP	LED	
DS 23	1	LN430YPP	LED	
DS 24	1	LN430YPP	LED	

P7722A MAIN PANEL DWG NO 4G205705-1

REF NO	QTY	PARTS NO	DESCRIPTION
DS 25	1	LN430YPP	LED
DS 26	1	LN430YPP	LED
DS 27	1	LN430YPP	LED
DS 28	1	LN430YPP	LED
DS 29	1	LN430YPP	LED
DS 30	1	LN430YPP	LED
DS 31	1	LN430YPP	LED
DS 32	1	LN430YPP	LED
DS 33	1	LN430YPP	LED
DS 34	1	LN430YPP	LED
DS 35	1	LN430YPP	LED
DS 36	1	LN430YPP	LED
DS 37	1	LN430YPP	LED
DS 38	1	LN430YPP	LED
DS 39	1	LN430YPP	LED
DS 40	1	LN430YPP	LED
DS 41	1	LN430YPP	LED
DS 42	1	LN430YPP	LED
DS 43	1	LN430YPP	LED
E 20	1	KL02	LED SOCKET
E 21	1	KL02	LED SOCKET
E 22	1	KL02	LED SOCKET
E 23	1	KL02	LED SOCKET
E 24	1	KL02	LED SOCKET
E 25	1	KL02	LED SOCKET
E 26	1	KL02	LED SOCKET
E 27	1	KL02	LED SOCKET
E 28	1	KL02	LED SOCKET
E 29	1	KL02	LED SOCKET
E 30	1	KL02	LED SOCKET
E 31	1	KL02	LED SOCKET
E 32	1	KL02	LED SOCKET
E 33	1	KL02	LED SOCKET
E 34	1	KL02	LED SOCKET
E 35	1	KL02	LED SOCKET
E 36	1	KL02	LED SOCKET
E 37	1	KL02	LED SOCKET
E 38	1	KL02	LED SOCKET
E 39	1	KL02	LED SOCKET
E 40	1	KL02	LED SOCKET
E 41	1	KL02	LED SOCKET

P7722A MAIN PANEL DWG NO 4G205705-1

REF NO	QTY	PARTS NO	DESCRIPTION
E 42	1	KL02	LED SOCKET
E 43	1	KL02	LED SOCKET
J 121	1	96S603307312	CONNECTOR:DIN 6033 96P SOCKET ABC SOLDER
J 122	1	96S603307312	CONNECTOR:DIN 6033 96P SOCKET ABC SOLDER
MP 104	1	4G760545-0C	KEYTOP,SQ W/LED
MP 105	1	4G760545-0C	KEYTOP,SQ W/LED
MP 106	1	4G760545-0C	KEYTOP,SQ W/LED
MP 107	1	4G760545-0C	KEYTOP,SQ W/LED
MP 108	1	4G760545-0C	KEYTOP,SQ W/LED
MP 109	1	4G760545-0C	KEYTOP,SQ W/LED
MP 110	1	4G760545-0C	KEYTOP,SQ W/LED
MP 111	1	4G760545-0C	KEYTOP,SQ W/LED
MP 112	1	4G760545-0C	KEYTOP,SQ W/LED
MP 113	1	4G760545-0C	KEYTOP,SQ W/LED
MP 114	1	4G760545-0C	KEYTOP,SQ W/LED
MP 115	1	4G760545-0C	KEYTOP,SQ W/LED
MP 116	1	4G760545-0C	KEYTOP,SQ W/LED
MP 117	1	4G760545-0C	KEYTOP,SQ W/LED
MP 118	1	4G760545-0C	KEYTOP,SQ W/LED
MP 119	1	4G760545-0C	KEYTOP,SQ W/LED
MP 120	1	4G760545-0C	KEYTOP,SQ W/LED
MP 121	1	4G760545-0C	KEYTOP,SQ W/LED
MP 122	1	4G760545-0C	KEYTOP,SQ W/LED
MP 123	1	4G760545-0C	KEYTOP,SQ W/LED
MP 124	1	4G760545-0C	KEYTOP,SQ W/LED
MP 125	1	4G760545-0C	KEYTOP,SQ W/LED
MP 126	1	4G760545-0C	KEYTOP,SQ W/LED
MP 127	1	4G760545-0C	KEYTOP,SQ W/LED
MP 128	1	4G760545-0C	KEYTOP,SQ W/LED
MP 129	1	4G760545-0C	KEYTOP,SQ W/LED
MP 130	1	4G760545-0C	KEYTOP,SQ W/LED
MP 131	1	4G760545-0C	KEYTOP,SQ W/LED
MP 132	1	4G760545-0C	KEYTOP,SQ W/LED
MP 133	1	4G760545-0C	KEYTOP,SQ W/LED
MP 134	1	4G760545-0C	KEYTOP,SQ W/LED
MP 135	1	4G760546-0C	KEYTOP,SQ
MP 136	1	4G760546-0C	KEYTOP,SQ
MP 137	1	4G760546-0C	KEYTOP,SQ
MP 138	1	4G760546-0C	KEYTOP,SQ
MP 139	1	4G760546-0C	KEYTOP,SQ
MP 140	1	4G760546-0C	KEYTOP,SQ

P7722A MAIN PANEL DWG NO 4G205705-1

REF NO	QTY	PARTS NO	DESCRIPTION	
MP 141	1	4G760546-0C	KEYTOP,SQ	
MP 142	1	4G760546-0C	KEYTOP,SQ	
MP 143	1	4G760546-0C	KEYTOP,SQ	
MP 144	1	4G760578-0CA	P3620A KEYTOP,0	
MP 145	1	4G760579-0CA	P3620A KEYTOP,1	
MP 146	1	4G760580-0CA	P3620A KEYTOP,2	
MP 147	1	4G760581-0CA	P3620A KEYTOP,3	
MP 148	1	4G760582-0CA	P3620A KEYTOP,4	
MP 149	1	4G760583-0CA	P3620A KEYTOP,5	
MP 150	1	4G760584-0CA	P3620A KEYTOP,6&9	
MP 151	1	4G760585-0CA	P3620A KEYTOP,7	
MP 152	1	4G760586-0CA	P3620A KEYTOP,8	
MP 153	1	4G760584-0CA	P3620A KEYTOP,6&9	
MP 154	1	4G760610-0CA	P2710A KEYTOP,POINT	
MP 155	1	4G760630-0CA	P8253A KEYTOP,-	
P 32	1	EMCB0330A51	CONNECTOR	3P L=300MM
R 1	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 2	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 3	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 4	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 5	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 6	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 7	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 8	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 9	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 10	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 11	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 12	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 13	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 14	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 15	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 16	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 17	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 18	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 19	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 20	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 21	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 22	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 23	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 24	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 25	1	ERDS2TJ274T	R:FXD CARBON	270K OHM 5% 1/4W

P7722A MAIN PANEL DWG NO 4G205705-1

REF NO	QTY	PARTS NO	DESCRIPTION	
R 26	1	ERDS2TJ104T	R:FXD CARBON	100K OHM 5% 1/4W
R 27	1	ERDS2TJ103T	R:FXD CARBON	10K OHM 5% 1/4W
R 28	1	ERDS2TJ104T	R:FXD CARBON	100K OHM 5% 1/4W
R 29	1	ERDS2TJ104T	R:FXD CARBON	100K OHM 5% 1/4W
R 30	1	ERDS2TJ104T	R:FXD CARBON	100K OHM 5% 1/4W
R 31	1	EXBF9E471J	R:NETWORK	470 OHM X8 5% 1/8W
R 32	1	EXBF9E471J	R:NETWORK	470 OHM X8 5% 1/8W
R 33	1	EXBF9E471J	R:NETWORK	470 OHM X8 5% 1/8W
R 34	1	EXBF9E471J	R:NETWORK	470 OHM X8 5% 1/8W
R 35	1	EXBF9E103J	R:NETWORK	10K OHM X8 5% 1/8W
R 36	1	EXBF9E103J	R:NETWORK	10K OHM X8 5% 1/8W
R 37	1	ERDS2TJ104T	R:FXD CARBON	100K OHM 5% 1/4W
R 38	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 39	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 40	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
S 1	1	SKHJFA003A	TACT SW	
S 2	1	82S15	PUSHB SW	KHJ TYPE
S 3	1	SKHJFA003A	TACT SW	
S 4	1	SKHJFA003A	TACT SW	
S 5	1	SKHJFA003A	TACT SW	
S 6	1	82S15	PUSHB SW	KHJ TYPE
S 7	1	82S15	PUSHB SW	KHJ TYPE
S 8	1	82S15	PUSHB SW	KHJ TYPE
S 9	1	SKHJFA003A	TACT SW	
S 10	1	82S15	PUSHB SW	KHJ TYPE
S 11	1	82S15	PUSHB SW	KHJ TYPE
S 12	1	82S15	PUSHB SW	KHJ TYPE
S 13	1	SKHJFA003A	TACT SW	
S 14	1	SKHJFA003A	TACT SW	
S 15	1	SKHJFA003A	TACT SW	
S 16	1	SKHJFA003A	TACT SW	
S 17	1	82S15	PUSHB SW	KHJ TYPE
S 18	1	82S15	PUSHB SW	KHJ TYPE
S 19	1	82S15	PUSHB SW	KHJ TYPE
S 20	1	82S15	PUSHB SW	KHJ TYPE
S 21	1	82S15	PUSHB SW	KHJ TYPE
S 22	1	82S15	PUSHB SW	KHJ TYPE
S 23	1	82S15	PUSHB SW	KHJ TYPE
S 24	1	82S15	PUSHB SW	KHJ TYPE
S 25	1	82S15	PUSHB SW	KHJ TYPE
S 26	1	82S15	PUSHB SW	KHJ TYPE
S 27	1	82S15	PUSHB SW	KHJ TYPE

P7722A MAIN PANEL DWG NO 4G205705-1

REF NO	QTY	PARTS NO	DESCRIPTION	
S 28	1	82S15	PUSHB SW	KHJ TYPE
S 29	1	SKHJFA003A	TACT SW	
S 30	1	SKHJFA003A	TACT SW	
S 31	1	SKHJFA003A	TACT SW	
S 32	1	82S15	PUSHB SW	KHJ TYPE
S 33	1	SKHJFA003A	TACT SW	
S 34	1	SKHJFA003A	TACT SW	
S 35	1	82S15	PUSHB SW	KHJ TYPE
S 36	1	SKHJFA003A	TACT SW	
S 37	1	SKHJFA003A	TACT SW	
S 38	1	SKHJFA003A	TACT SW	
S 39	1	SKHJFA003A	TACT SW	
S 40	1	SKHJFA003A	TACT SW	
S 41	1	SKHJFA003A	TACT SW	
S 42	1	SKHJFA003A	TACT SW	
S 43	1	SKHJFA003A	TACT SW	
S 44	1	SKHJFA003A	TACT SW	
S 45	1	SKHJFA003A	TACT SW	
S 46	1	SKHJFA003A	TACT SW	
S 47	1	SKHJFA003A	TACT SW	
S 48	1	SKHJFA003A	TACT SW	
S 49	1	SKHJFA003A	TACT SW	
S 50	1	SKHJFA003A	TACT SW	
S 51	1	SKHJFA003A	TACT SW	
S 52	1	SKHJFA003A	TACT SW	
S 52	1	1101M2CQ2	SLIDE SW	6A-120V 1PDT
S 101	1	EWTXDPS2540B	R:C-P ROTARY ENCODER	
U 1	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 2	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 3	1	TD62306P	IC:DRIVER	6LINE RELAY DRIVER
U 4	1	CMOS4013BP	IC:C MOS	DUAL D-TYPE FLIP-FLOP
U 5	1	CMOS4081BP	IC:C MOS	QUAD 2-INPUT AND GATE
U 6	1	CMOS4093BP	IC:C MOS	QUAD 2-INPUT SCHMITT
U 7	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 8	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 9	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 10	1	TC74HC244P	IC:C MOS	OCTAL BUS BUFFER
U 11	1	TC74HC244P	IC:C MOS	OCTAL BUS BUFFER
U 12	1	TC74HC244P	IC:C MOS	OCTAL BUS BUFFER
U 13	1	TC74HC244P	IC:C MOS	OCTAL BUS BUFFER
U 14	1	CMOS4068BP	IC:C MOS	8-INPUT NAND GATE

P7722A SUB PANEL DWG NO 4G205706-1

REF NO	QTY	PARTS NO	DESCRIPTION	
C 1	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 2	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 3	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 4	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 5	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 6	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 7	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 8	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 9	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 10	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 11	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 12	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 13	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 14	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 15	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 16	1	ECEA1HN010S	C:FXD AL ELECT	1UF +-20% 50V
C 17	1	ECKF1H103MD	C:FXD CER HI-K	10000PF +-20% 50V
C 18	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 19	1	ECEA1CU101	C:FXD AL ELECT	100UF +-20% 16V
C 20	1	ECKF1H104ZV	C:FXD CER HI-K	0.1UF +80%-20% 50V
C 21	1	ECCF1H101KC	C:FXD CER TC	100PF +-10% 50V NPO
E 2	1	TCP/D43BSB	RIVET NSC4-3	
E 3	1	TCP/D43BSB	RIVET NSC4-3	
J 123	1	SLEM30R-2	CONNECTOR:ZIFLOK	30P RIGHT ANGLE
J 124	1	SLEM30S-2	CONNECTOR:ZIFLOK	30P STRAIGHT
J 131	1	SLEM30R-2	CONNECTOR:ZIFLOK	30P RIGHT ANGLE
J 141	1	170001-2	CONNECTOR	FAST-ON 187 TAB
J 142	1	170001-2	CONNECTOR	FAST-ON 187 TAB
L 1	1	SN8S500	COIL:CHOKE	2A
P 121	1	96P604307233	CONNECTOR:PIN	96P
P 122	1	96P604307233	CONNECTOR:PIN	96P
R 1	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 2	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 3	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 4	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 5	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 6	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 7	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 8	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W

P7722A SUB PANEL DWG NO 4G205706-1

REF NO	QTY	PARTS NO	DESCRIPTION	
R 9	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 10	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 11	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 12	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 13	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 14	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 15	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 16	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 17	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 18	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 19	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 20	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 21	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 22	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 23	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 24	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 25	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 26	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 27	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 28	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 29	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 30	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 31	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 32	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 33	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 34	1	EXBT44471K	R:NETWORK	470 OHM X4 10% 1/4W
R 35	1	ERDS2TJ104T	R:FXD CARBON	100K OHM 5% 1/4W
R 36	1	ERDS2TJ104T	R:FXD CARBON	100K OHM 5% 1/4W
R 37	1	ERDS2TJ104T	R:FXD CARBON	100K OHM 5% 1/4W
R 38	1	ERDS2TJ102T	R:FXD CARBON	1K OHM 5% 1/4W
R 39	1	ERDS2TJ102T	R:FXD CARBON	1K OHM 5% 1/4W
R 40	1	ERDS2TJ102T	R:FXD CARBON	1K OHM 5% 1/4W
R 41	1	EXBP88103M	R:NETWORK	10K OHM X8 20% 1/8W
R 42	1	EXBP88103M	R:NETWORK	10K OHM X8 20% 1/8W
R 43	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 44	1	ERDS2TJ471T	R:FXD CARBON	470 OHM 5% 1/4W
R 45	1	ERDS2TJ104T	R:FXD CARBON	100K OHM 5% 1/4W
U 1	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 2	1	UPD4511BAC	IC:C MOS	BCD-7SEG LATCH/DEC/DRVR
U 3	1	UPD4511BAC	IC:C MOS	BCD-7SEG LATCH/DEC/DRVR
U 4	1	UPD4511BAC	IC:C MOS	BCD-7SEG LATCH/DEC/DRVR
U 5	1	TC5069BP	IC:C MOS	BCD-7SEG LATCH/DEC/DRVR

P7722A SUB PANEL DWG NO 4G205706-1

REF NO	QTY	PARTS NO	DESCRIPTION	
U 6	1	UPD4511BAC	IC:C MOS	BCD-7SEG LATCH/DEC/DRVR
U 7	1	UPD4511BAC	IC:C MOS	BCD-7SEG LATCH/DEC/DRVR
U 8	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 9	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 10	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 11	1	TC5069BP	IC:C MOS	BCD-7SEG LATCH/DEC/DRVR
U 12	1	UPD4511BAC	IC:C MOS	BCD-7SEG LATCH/DEC/DRVR
U 13	1	UPD4511BAC	IC:C MOS	BCD-7SEG LATCH/DEC/DRVR
U 14	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 15	1	UPD4511BAC	IC:C MOS	BCD-7SEG LATCH/DEC/DRVR
U 16	1	TC5069BP	IC:C MOS	BCD-7SEG LATCH/DEC/DRVR
U 17	1	UPD4511BAC	IC:C MOS	BCD-7SEG LATCH/DEC/DRVR
U 18	1	UPD4511BAC	IC:C MOS	BCD-7SEG LATCH/DEC/DRVR
U 19	1	TC5069BP	IC:C MOS	BCD-7SEG LATCH/DEC/DRVR
U 20	1	UPD4511BAC	IC:C MOS	BCD-7SEG LATCH/DEC/DRVR
U 21	1	TC74HC138P	IC:C MOS	3-TO-8 LINE DECODER
U 22	1	TC74HC138P	IC:C MOS	3-TO-8 LINE DECODER
U 23	1	TC74HC138P	IC:C MOS	3-TO-8 LINE DECODER
U 24	1	TC74HC138P	IC:C MOS	3-TO-8 LINE DECODER
U 25	1	UPD4511BAC	IC:C MOS	BCD-7SEG LATCH/DEC/DRVR
U 26	1	TC5069BP	IC:C MOS	BCD-7SEG LATCH/DEC/DRVR
U 27	1	UPD4511BAC	IC:C MOS	BCD-7SEG LATCH/DEC/DRVR
U 28	1	UPD4511BAC	IC:C MOS	BCD-7SEG LATCH/DEC/DRVR
U 29	1	TC74HC244P	IC:C MOS	OCTAL BUS BUFFER
U 30	1	TC74HC244P	IC:C MOS	OCTAL BUS BUFFER
U 31	1	TC74HC04P	IC:C MOS	HEX INVERTER
U 32	1	TC74HC32P	IC:C MOS	QUAD 4-INPUT OR GATE
U 33	1	TC74HC244P	IC:C MOS	OCTAL BUS BUFFER
U 34	1	CMOS4528BP	IC:C MOS	DUAL MOHO MULTI
U 35	1	TC74HC240P	IC:C MOS	OCTAL INVERTER 3-STATE
U 36	1	TC74HC74P	IC:C MOS	DUAL D-TYPE FLIP-FLOP
U 37	1	TC74HC10P	IC:C MOS	TRIPLE 3-INPUT
U 38	1	TC74HC244P	IC:C MOS	OCTAL BUS BUFFER
U 39	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 40	1	TC74HC374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE

P7722A REMOTE DWG NO 4G205707

REF NO	QTY	PARTS NO	DESCRIPTION	
J 15	1	4G470850	P8253A CONNECTOR	57LE-40140-77C0-D12
J 201	1	M3115P01	CONNECTOR:PIN	15P
J 223	1	SLEM30S-2	CONNECTOR:ZIFLOK	30P STRAIGHT
MP 28	1	4G617270-0BB	P7705A ANGLE:PCB	
MP 29	1	4G617270-0BB	P7705A ANGLE:PCB	
S 11	1	DYS8	DIP SWITCH	8PST

P7722P02 PANEL&CHASSIS DWG NO 4G206172

REF NO	QTY	PARTS NO	DESCRIPTION	
	4	4G712666-0W	LABEL:PANASONIC 100X200	
B 1	1	FBP08B12H	FAN MOTOR	BRUSHLESS DC12V 0.32A
E	8	60619-1	CONNECTOR	MATE-N-LOK CONTACT SOC
E 2	1	50-1020	PC GUIDE	L=118.2MM
E 3	1	50-1020	PC GUIDE	L=118.2MM
E 4	1	50-1020	PC GUIDE	L=118.2MM
E 5	1	50-1020	PC GUIDE	L=118.2MM
E 6	1	50-1020	PC GUIDE	L=118.2MM
E 7	1	50-1020	PC GUIDE	L=118.2MM
E 8	1	50-1020	PC GUIDE	L=118.2MM
E 9	1	50-1020	PC GUIDE	L=118.2MM
E 10	1	50-1020	PC GUIDE	L=118.2MM
E 11	1	50-1020	PC GUIDE	L=118.2MM
E 12	1	50-1020	PC GUIDE	L=118.2MM
E 13	1	50-1020	PC GUIDE	L=118.2MM
E 14	1	50-1020	PC GUIDE	L=118.2MM
E 15	1	50-1020	PC GUIDE	L=118.2MM
F *	1	IEC800MAT	FUSE : TIME LAG	800MA 250V 20MM
F 1	1	IEC800MAT	FUSE : TIME LAG	800MA 250V 20MM
J 1	1	BNC284-BR-5	CONNECTOR:COAX	BNC PANEL JACK
J 2	1	4G601212-1W	TERMINAL-E:GRD	
J 3	1	BNC284-BR-5	CONNECTOR:COAX	BNC PANEL JACK
J 4	1	BNC284-BR-5	CONNECTOR:COAX	BNC PANEL JACK
J 5	1	BNC284-BR-5	CONNECTOR:COAX	BNC PANEL JACK
J 6	1	BNC284-BR-5	CONNECTOR:COAX	BNC PANEL JACK
J 7	1	BNC284-BR-5	CONNECTOR:COAX	BNC PANEL JACK
J 12	1	BNC284-BR-5	CONNECTOR:COAX	BNC PANEL JACK
J 13	1	BNC284-BR-5	CONNECTOR:COAX	BNC PANEL JACK
J 14	1	BNC284-BR-5	CONNECTOR:COAX	BNC PANEL JACK
MM **	1	MEP7722P-0	INSTRUCTION MANUAL	
MP *1	1	4G634671-0W	P7722P LABEL:IDENT	
MP 1	1	2G630654-1AH	P7722A PANEL	
MP 157	1	R76W-60743C	BAND:POWER CORD	
MP 158	1	3G710402-0N	P9551A BAG PACKING	
MP 159	1	4G712047-0N	P9549A BAG:PACKING	
MP 160	1	4G712649-0N	BAG:ACCESSORY,PLAIN	
P 31	1	4G470959-1	CABLE:CARD	SMCD-30-100-BD
P 33	1	163690-1	CONNECTOR:PIN	CIS 3P 2.5PITCH
P 35	1	EMCB0330A51	CONNECTOR	3P L=300MM

P7722P02 PANEL&CHASSIS DWG NO 4G206172

REF NO	QTY	PARTS NO	DESCRIPTION	
P 51	1	163690-1	CONNECTOR:PIN	CIS 3P 2.5PITCH
P 53	1	163690-4	CONNECTOR:PIN	CIS 6P 2.5PITCH
P 54	1	163690-4	CONNECTOR:PIN	CIS 6P 2.5PITCH
P 61	1	170038-4	CONNECTOR	FAST-ON 187 RECEPT
P 62	1	170038-4	CONNECTOR	FAST-ON 187 RECEPT
P 63	1	170038-4	CONNECTOR	FAST-ON 187 RECEPT
P 76	1	1-480283-0	CONNECTOR	MATE-N-LOK 8P PLUG
P 123	1	4G470960-1	CABLE:CARD	SMCD-30-150-AD
P 124	1	4G470961-1	CABLE:CARD	SMCD-30-750-AD
P 141	1	170038-4	CONNECTOR	FAST-ON 187 RECEPT
P 142	1	170038-4	CONNECTOR	FAST-ON 187 RECEPT
P 214	1	163690-2	CONNECTOR:PIN	CIS 4P 2.5PITCH
W 1	1	99-81-2M	CABLE:PWR (CEE)	250V 6A

P7722A CABINET DWG NO 4G304307

REF NO	QTY	PARTS NO	DESCRIPTION
MP 301	1	A66S84M54	FRAME,CORNER H150
MP 302	1	A66S84M54	FRAME,CORNER H150
MP 303	1	A66S84M54	FRAME,CORNER H150
MP 304	1	A66S84M54	FRAME,CORNER H150
MP 305	1	R76G-C30RK15	FOOT-C30RK15
MP 306	1	R76G-C30RK15	FOOT-C30RK15
MP 307	1	R76G-C30RK15	FOOT-C30RK15
MP 308	1	R76G-C30RK15	FOOT-C30RK15
MP 309	1	3G550003-2N	P438A STAND
MP 310	1	3G580872-0C	P7722A COVER,TOP
MP 311	1	3G580873-0C	P7722A COVER,BTM
MP 312	1	3G670621-0SF	EXTRUSION,LH D400
MP 313	1	3G670620-0SF	EXTRUSION,RH D400
MP 314	1	3G670591-0SF	TRIM H100XW426
MP 315	1	3G670591-0SF	TRIM H100XW426
MP 316	1	3G670591-0SF	TRIM H100XW426
MP 317	1	3G670591-0SF	TRIM H100XW426
MP 318	1	4G550009-0E	HANDLE ASSEY,MIDDLE
MP 319	1	4G550020-0FF	P5250A HOLDER:HANDLE-M
MP 320	1	4G550020-0FF	P5250A HOLDER:HANDLE-M
MP 321	1	4G760127-2G	FOOT,RECTANGULAR-RH
MP 322	1	4G760127-2G	FOOT,RECTANGULAR-RH
MP 323	1	4G760128-2G	FOOT,RECTANGULAR-LH
MP 324	1	4G760128-2G	FOOT,RECTANGULAR-LH
MP 325	1	4G760131-1G	RUBBER:FOOT,RECTANGULAR
MP 326	1	4G760131-1G	RUBBER:FOOT,RECTANGULAR
MP 327	1	4G760131-1G	RUBBER:FOOT,RECTANGULAR
MP 328	1	4G760131-1G	RUBBER:FOOT,RECTANGULAR
MP 329	1	4G760131-1G	RUBBER:FOOT,RECTANGULAR
MP 330	1	4G760131-1G	RUBBER:FOOT,RECTANGULAR
MP 331	1	4G760131-1G	RUBBER:FOOT,RECTANGULAR
MP 332	1	4G760131-1G	RUBBER:FOOT,RECTANGULAR

P7722A MECHA DWG NO 4G304308

REF NO	QTY	PARTS NO	DESCRIPTION
MP 2	1	2G580817-1CH	P7722A PLATE,REAR
MP 4	1	R76K-B312250	BUSHING-B312-250
MP 5	1	2G590680-0CB	P7722A PLATE,FRONT
MP 6	1	2G590681-0WB	P7722A CASE:DIGITAL
MP 7	1	2G611537-2WB	P7722A SHIELD:POWER
MP 8	1	3G590775-1FB	P7722A CVR:DIGITAL CASE
MP 9	1	3G590776-0EB	P7722A PLATE:SHIELD-1
MP 10	1	3G590776-0EB	P7722A PLATE:SHIELD-1
MP 11	1	3G590776-0EB	P7722A PLATE:SHIELD-1
MP 13	1	3G590777-1BB	P7722A HLDR:GUIDE PLT-1
MP 14	1	3G590778-1CB	P7722A HLDR:GUIDE RAIL-1
MP 15	1	3G590780-0EB	P7722A PLATE:SHIELD-2
MP 16	1	3G590780-0EB	P7722A PLATE:SHIELD-2
MP 17	1	3G614171-0CB	P7722A HLDR:GUIDE RAIL-3
MP 18	1	4G530601-1K	P7722A FILTER:LED-1
MP 19	1	4G530602-1K	P7722A FILTER:LED-2
MP 20	1	4G530603-1K	P7722A FILTER:LED-3
MP 21	1	4G530603-1K	P7722A FILTER:LED-3
MP 22	1	4G540628-1P	P7722A PAD:ANALOG PCB
MP 23	1	4G540629-2P	P7722A PAD:DIGITAL PCB
MP 24	1	4G580671-0AH	P7722A PLATE:GP-IB
MP 25	1	4G580672-0AF	P7722A BLANK PLATE
MP 26	1	4G616709-0LB	BAND,D6
MP 33	1	4G617639-1BB	P7722A HLDR:GUIDE PLT-2
MP 34	1	4G617640-0CB	P7722A HLDR:GUIDE RAIL-2
MP 35	1	4G617641-0CB	P7722A HLDR:GUIDE RAIL-4
MP 36	1	4G617642-0CB	P7722A HLDR:GUIDE RAIL-5
MP 49	1	4G644143-1BB	P549A STUD 3X7
MP 50	1	4G644143-1BB	P549A STUD 3X7
MP 51	1	4G644143-1BB	P549A STUD 3X7
MP 52	1	4G644143-1BB	P549A STUD 3X7
MP 53	1	4G644143-1BB	P549A STUD 3X7
MP 54	1	4G644143-1BB	P549A STUD 3X7
MP 55	1	4G644143-1BB	P549A STUD 3X7
MP 56	1	4G644143-1BB	P549A STUD 3X7
MP 77	1	4G644138-3AB	SPACER 3X20
MP 78	1	4G644138-3AB	SPACER 3X20
MP 79	1	4G644148-2AB	SPACER 3X35
MP 80	1	4G644148-2AB	SPACER 3X35
MP 81	1	4G644148-2AB	SPACER 3X35
MP 82	1	4G644148-2AB	SPACER 3X35
MP 84	1	4G644229-1AB	P562A SPACER 3X13

P7722A MECHA DWG NO 4G304308

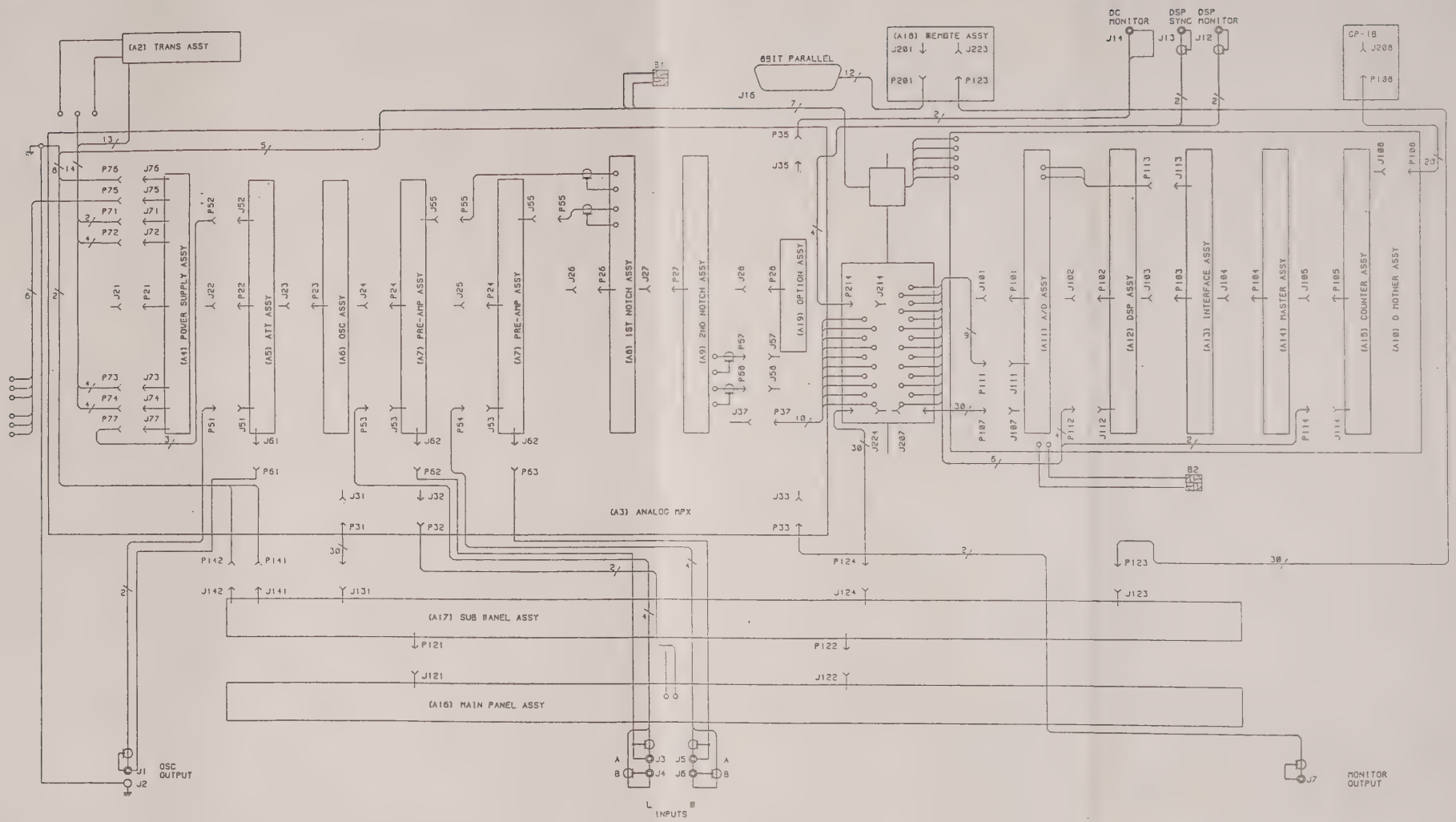
REF NO	QTY	PARTS NO	DESCRIPTION
MP 85	1	4G644229-1AB	P562A SPACER 3X13
MP 86	1	4G644229-1AB	P562A SPACER 3X13
MP 87	1	4G644229-1AB	P562A SPACER 3X13
MP 88	1	4G644595-0AB	SPACER 3X17
MP 89	1	4G644595-0AB	SPACER 3X17
MP 90	1	4G644595-0AB	SPACER 3X17
MP 91	1	4G644595-0AB	SPACER 3X17
MP 92	1	4G644595-0AB	SPACER 3X17
MP 93	1	4G644595-0AB	SPACER 3X17
MP 96	1	4G650530-0NB	P3683A NET:FAN
MP 97	1	4G670574-0CB	P7722A CASE:GP-IB
MP 98	1	4G702675-2E	P5945A ROD:SWITCH
MP 99	1	4G760126-0G	P542A FOOT,REAR
MP 100	1	4G760126-0G	P542A FOOT,REAR
MP 101	1	4G760126-0G	P542A FOOT,REAR
MP 102	1	4G760126-0G	P542A FOOT,REAR
MP 103	1	4G760214-0C	KNOB,16N6A
MP 156	1	2G590679-2FB	P7722A CHASSIS
MP 164	1	4G617751-0PB	P7722A NUT:PLATE
MP 165	1	4G617751-0PB	P7722A NUT:PLATE
MP 167	1	4G617750-0FB	P7722A HOLDER:TRANS
MP 170	1	4G540629-2P	P7722A PAD:DIGITAL PCB
MP 500	1	3G760595-0S	JOINT:POWER SWITCH

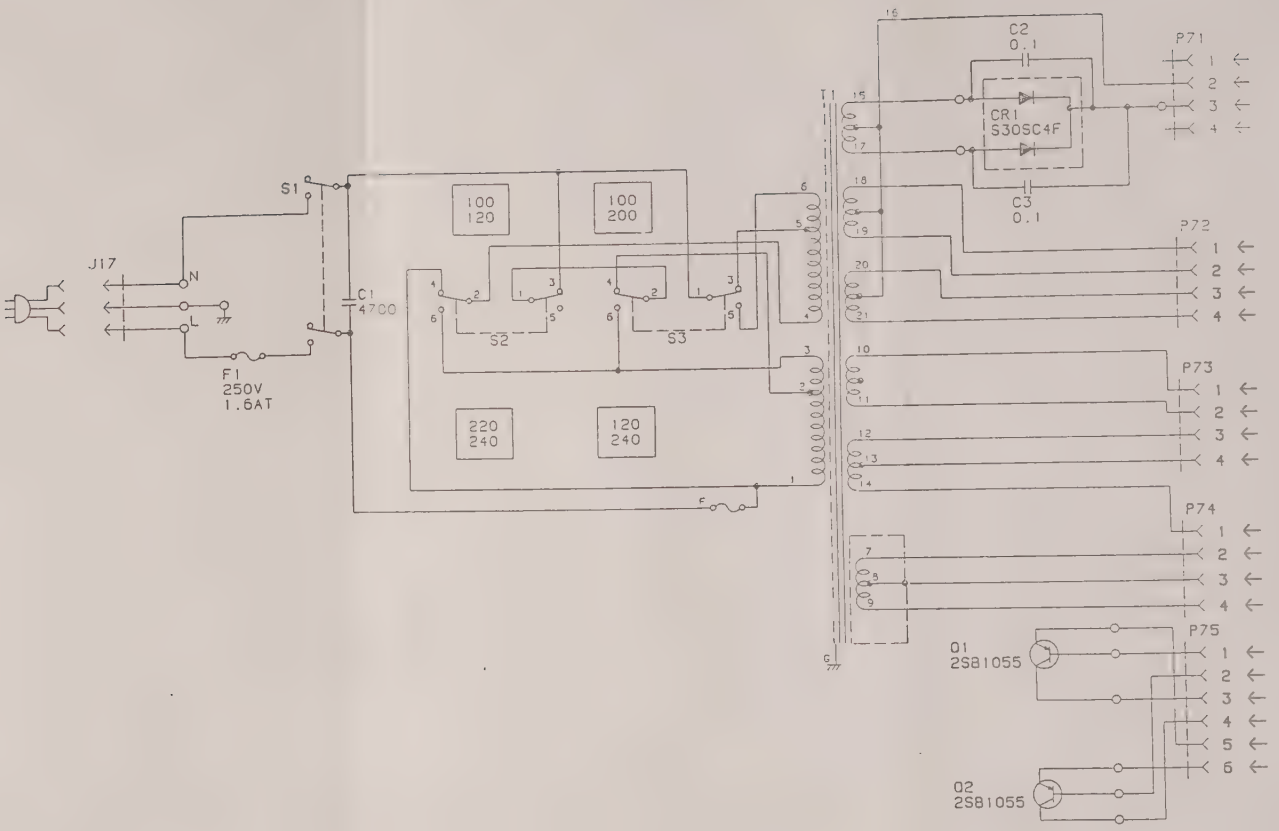
KP-830 PACKAGE DWG NO 4G304309

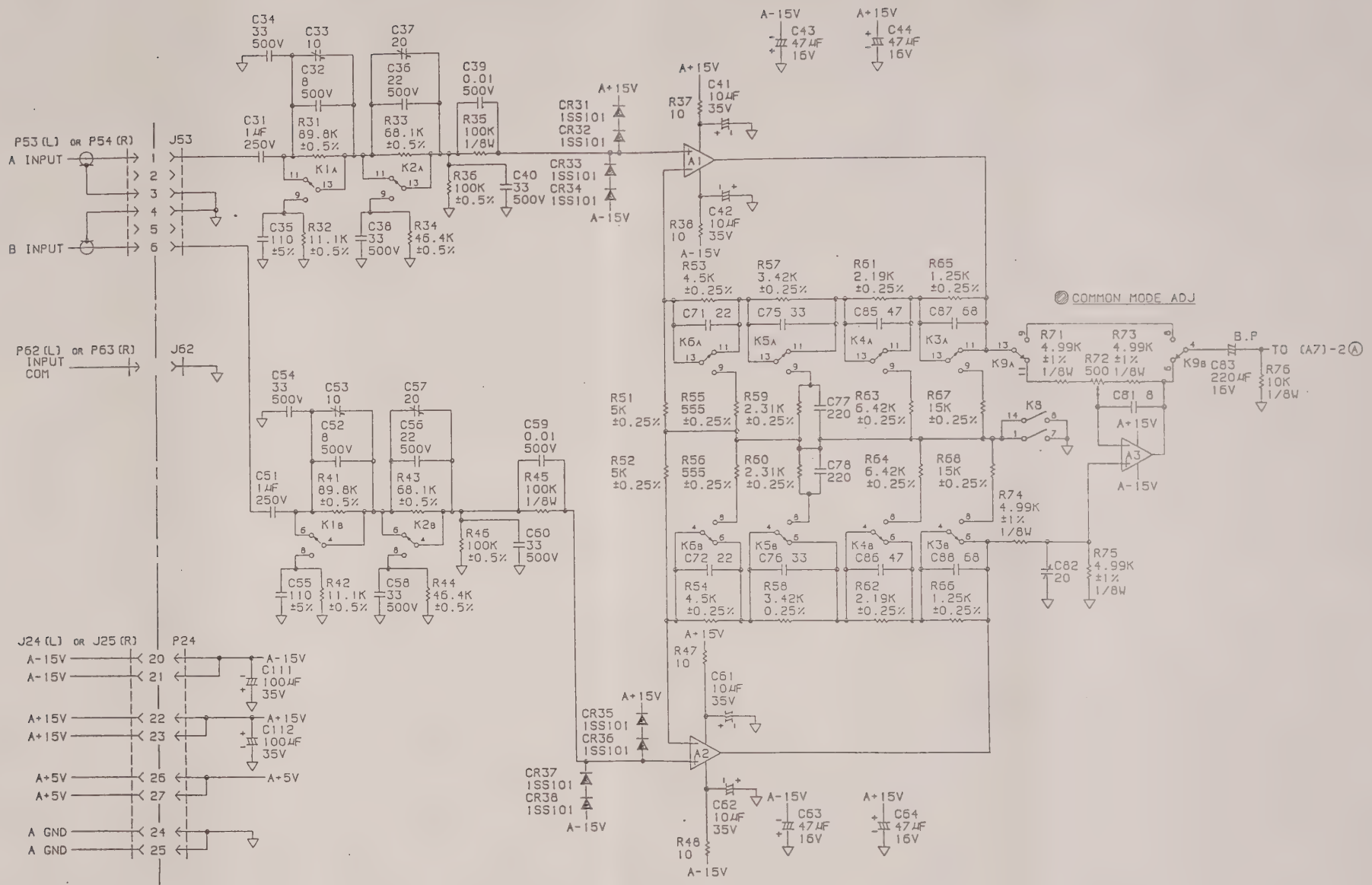
REF NO	QTY	PARTS NO	DESCRIPTION
	2	2G710201-0E	KP-800 CUSHION
	1	4G712209-0A	KP-830 CARTON BOX
	1	830SN0	KP-830 PACKING KIT

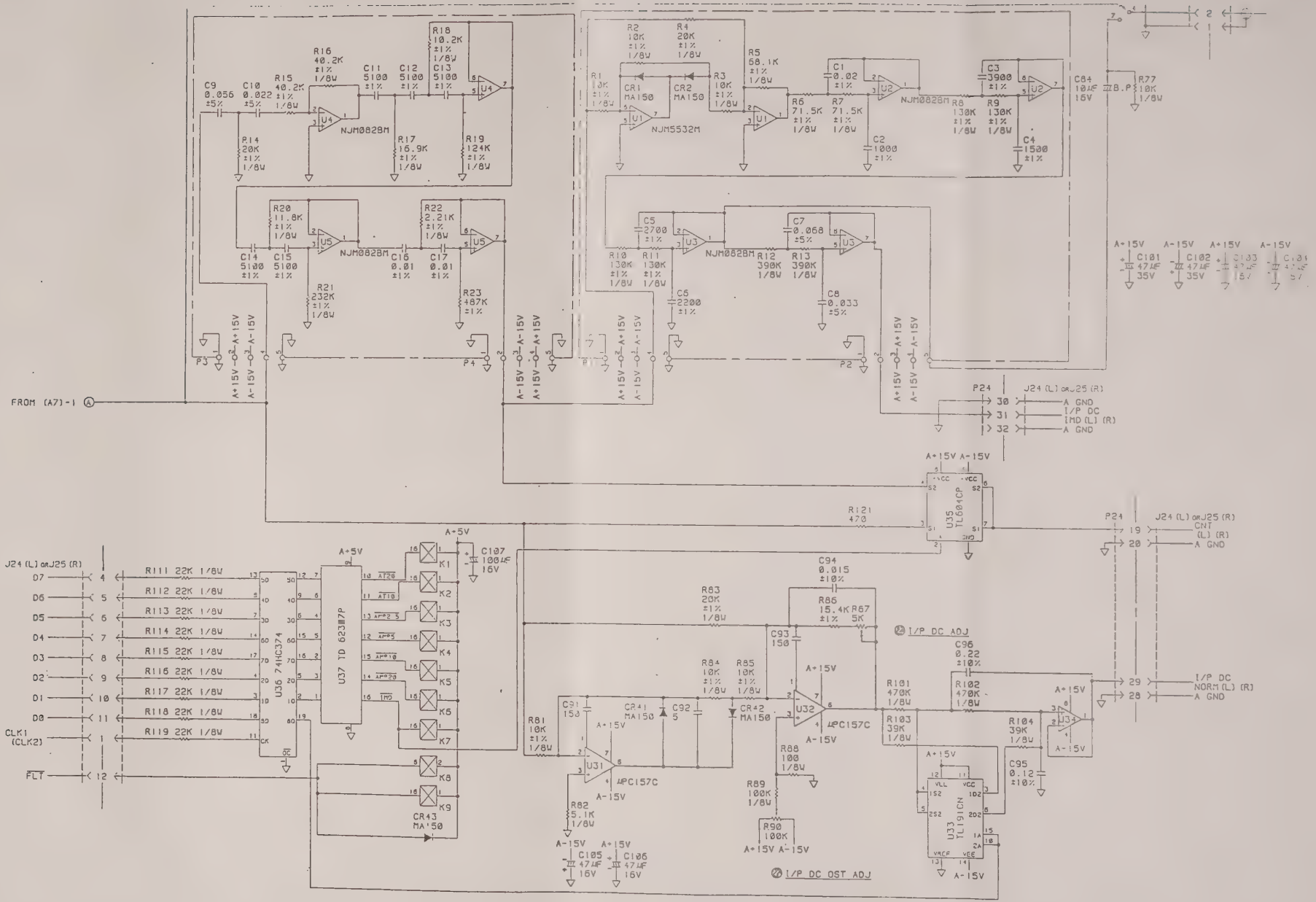
CIRCUIT DIAGRAMS

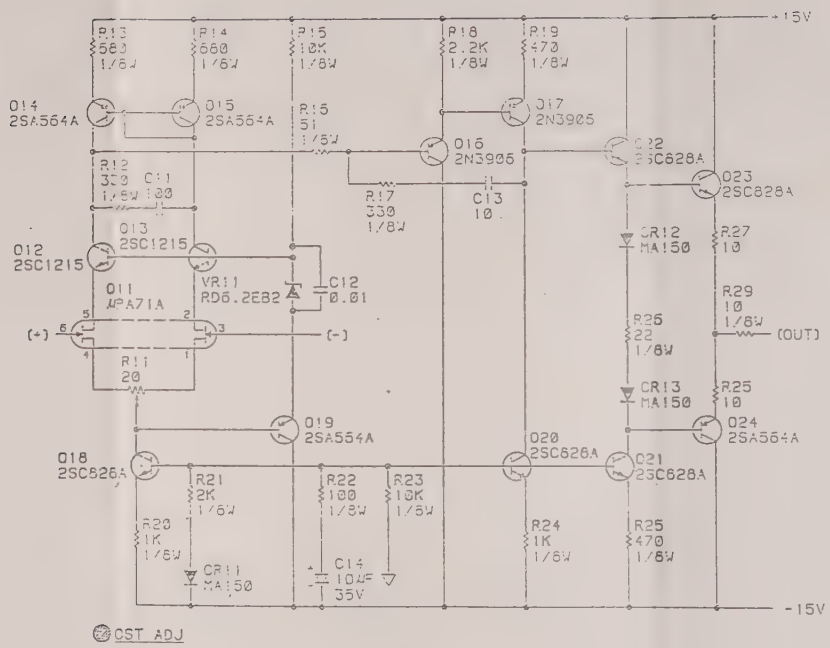
- PANEL & CHASSIS A1 .....6- 2
- TRANSFORMER ASSY A2 .....6- 3
- ANALOG MPX A3 .....6- 4
- POWER SUPPLY A4 .....6- 5
- ATT ASSY A5 .....6- 6
- OSC ASSY A6 .....6- 7
- PRE AMP L,R A7-1 .....6- 8
- PRE AMP L,R A7-2 .....6- 9
- AMP L,R A7-3 6-10
- FARST. NOTCH ASSY A8 6-11
- SECOND. NOTCH ASSY A9 6-12
- DIGITAL MOTHER ASSY A10 6-13
- A/D CONVERTER ASSY A11 6-14
- DISPLAY ASSY A12 6-15
- INTERFACE ASSY A13 6-16
- MASTER ASSY A14 6-17
- COUNTER ASSY A15 6-18
- MAIN PANEL A16 6-19
- SUB PANEL A17 6-20
- REMOTE ASSY A18 6-21
- IHF BPF WITH 19 KHZ NOTCH OPT1 6-22
- DOLBY WEIGHTING OPT2 6-23
- CCITT P53 PROG WEIGHTING OPT3 6-24
- CCITT P53 TEL WEIGHTING OPT4 6-25
- DIN AUDIO WEIGHTING OPT5 6-26
- C-MESSAGE WEIGHTING OPT7 6-27
- 1 KHZ BAND PASS FILTER OPT8 6-28
- 3 KHZ BAND PASS FILTER OPT9 6-29
- 20 KHZ LOW PASS FILTER OPT6 6-30

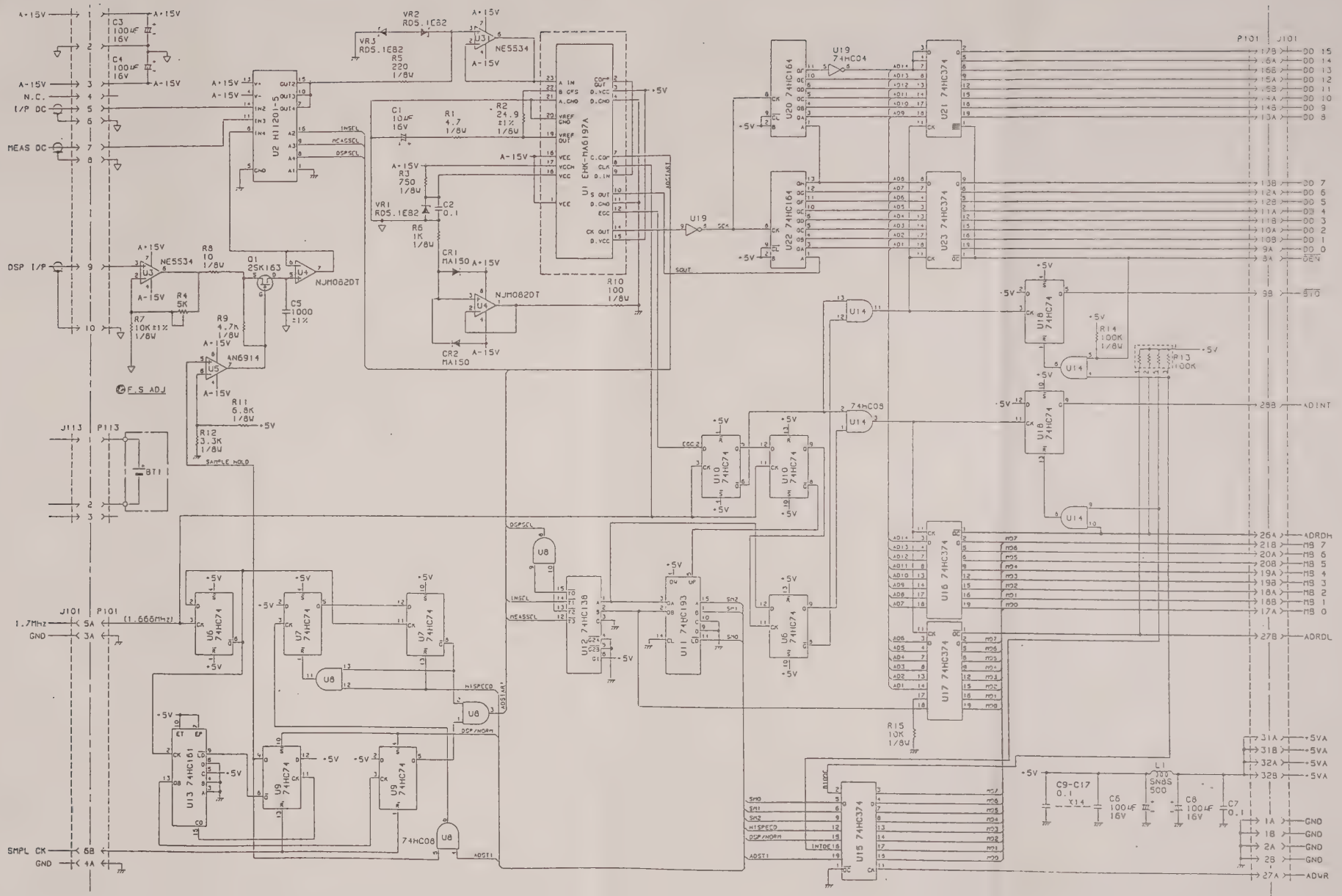

(A2) TRANS ASSY
8BIT PARALLEL
J16
(A18) REMOTE ASSY
J201
J223
P201
P123
DC MONITOR
J14
DSP SYNC
J13
DSP MONITOR
J12
GP-IB
J208
P108
(A11) A/D ASSY
(A12) DSP ASSY
(A13) INTERFACE ASSY
(A14) MASTER ASSY
(A15) COUNTER ASSY
(A10) D MOTHER ASSY
(A4) POWER SUPPLY ASSY
(A5) ATT ASSY
(A6) OSC ASSY
(A7) PRE-AMP ASSY
(A7) PRE-AMP ASSY
(A8) 1ST NOTCH ASSY
(A9) 2ND NOTCH ASSY
(A19) OPTION ASSY
(A3) ANALOG MPX
(A17) SUB PANEL ASSY
(A16) MAIN PANEL ASSY
OSC OUTPUT
INPUTS
MONITOR OUTPUT


J17
N
L
S1
F1
250V
1.6AT
C1
4700
100
120
100
200
S2
S3
220
240
120
240
C2
0.1
CR1
S30SC4F
C3
0.1
P71
P72
P73
P74
P75
Q1
2SB1055
Q2
2SB1055

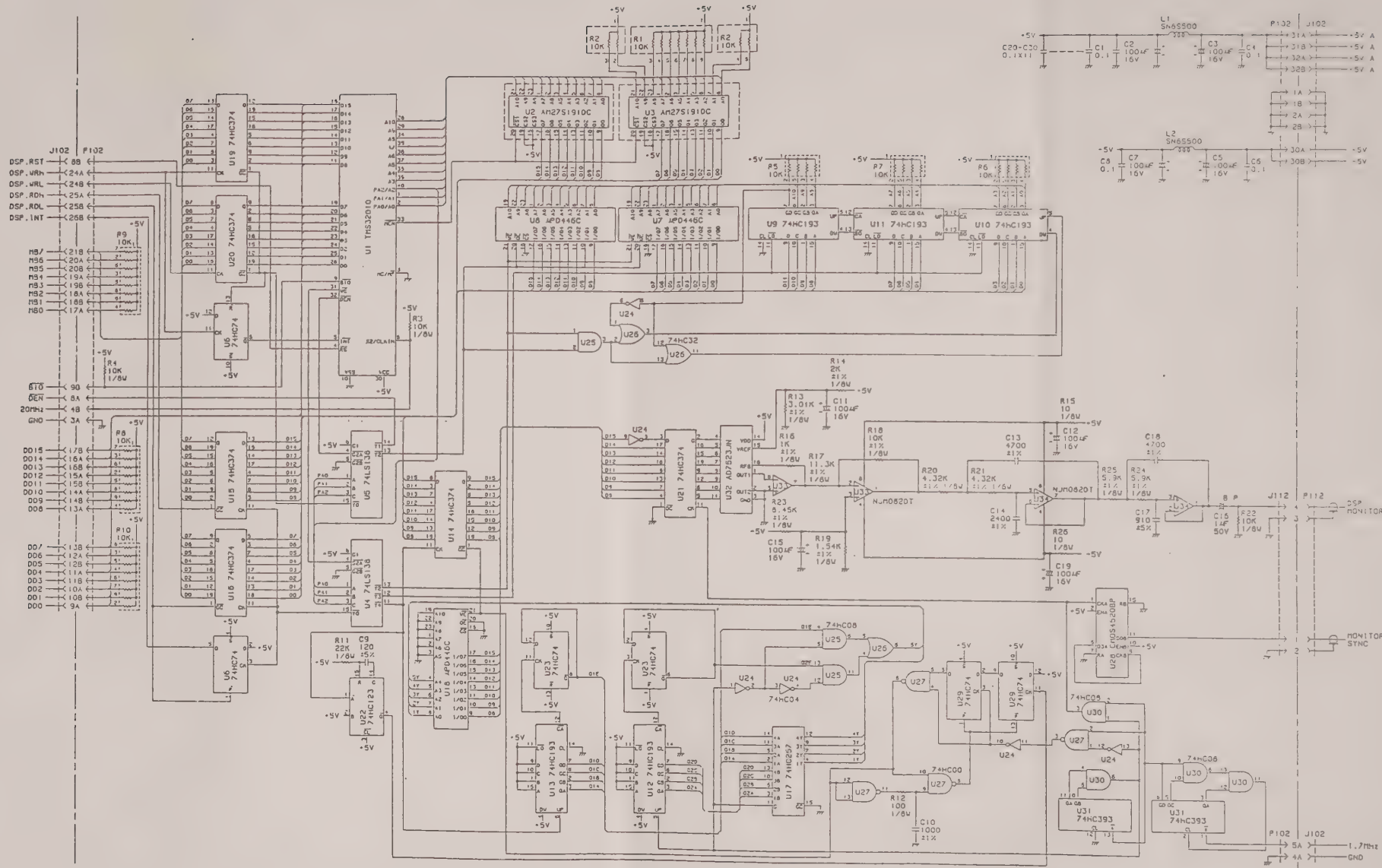

P53 (L) OR P54 (R)
A INPUT
B INPUT
J53
P62 (L) OR P63 (R)
INPUT
COM
J62
J24 (L) OR J25 (R)
P24
A-15V
A+15V
A+5V
A GND
C34 33 500V
C33 10
C32 8 500V
C37 20
C36 22 500V
C39 0.01 500V
C31 1μF 250V
R31 89.8K ±0.5%
R33 68.1K ±0.5%
R35 100K 1/8W
K1A
K2A
R36 100K ±0.5%
C40 33 500V
C35 110 ±5%
R32 11.1K ±0.5%
C38 33 500V
R34 46.4K ±0.5%
C54 33 500V
C53 10
C52 8 500V
C57 20
C56 22 500V
C59 0.01 500V
C51 1μF 250V
R41 89.8K ±0.5%
R43 68.1K ±0.5%
R45 100K 1/8W
K1B
K2B
R46 100K ±0.5%
C60 33 500V
C55 110 ±5%
R42 11.1K ±0.5%
C58 33 500V
R44 46.4K ±0.5%
CR31 1SS101
CR32 1SS101
CR33 1SS101
CR34 1SS101
R37 10
C41 10μF 35V
A1
C42 10μF 35V
R38 10
C43 47μF 16V
C44 47μF 16V
R53 4.5K ±0.25%
R57 3.42K ±0.25%
R61 2.19K ±0.25%
R65 1.25K ±0.25%
C71 22
C75 33
C85 47
C87 68
K6A
K5A
K4A
K3A
COMMON MODE ADJ
R71 4.99K ±1% 1/8W
R73 4.99K ±1%
R72 500 1/8W
K9A
K9B
B.P
TO (A7)-2
C83 220μF 16V
R76 10K 1/8W
C81 8
R51 5K ±0.25%
R55 555 ±0.25%
R59 2.31K ±0.25%
C77 220
R63 6.42K ±0.25%
R67 15K ±0.25%
K8
A3
R52 5K ±0.25%
R56 555 ±0.25%
R60 2.31K ±0.25%
C78 220
R64 6.42K ±0.25%
R68 15K ±0.25%
R74 4.99K ±1% 1/8W
K6B
K5B
K4B
K3B
C72 22
C76 33
C86 47
C88 68
C82 20
R75 4.99K ±1% 1/8W
R54 4.5K ±0.25%
R58 3.42K 0.25%
R62 2.19K ±0.25%
R66 1.25K ±0.25%
R47 10
C61 10μF 35V
A2
CR35 1SS101
CR36 1SS101
CR37 1SS101
CR38 1SS101
C62 10μF 35V
C63 47μF 16V
C64 47μF 16V
R48 10
C111 100μF 35V
C112 100μF 35V

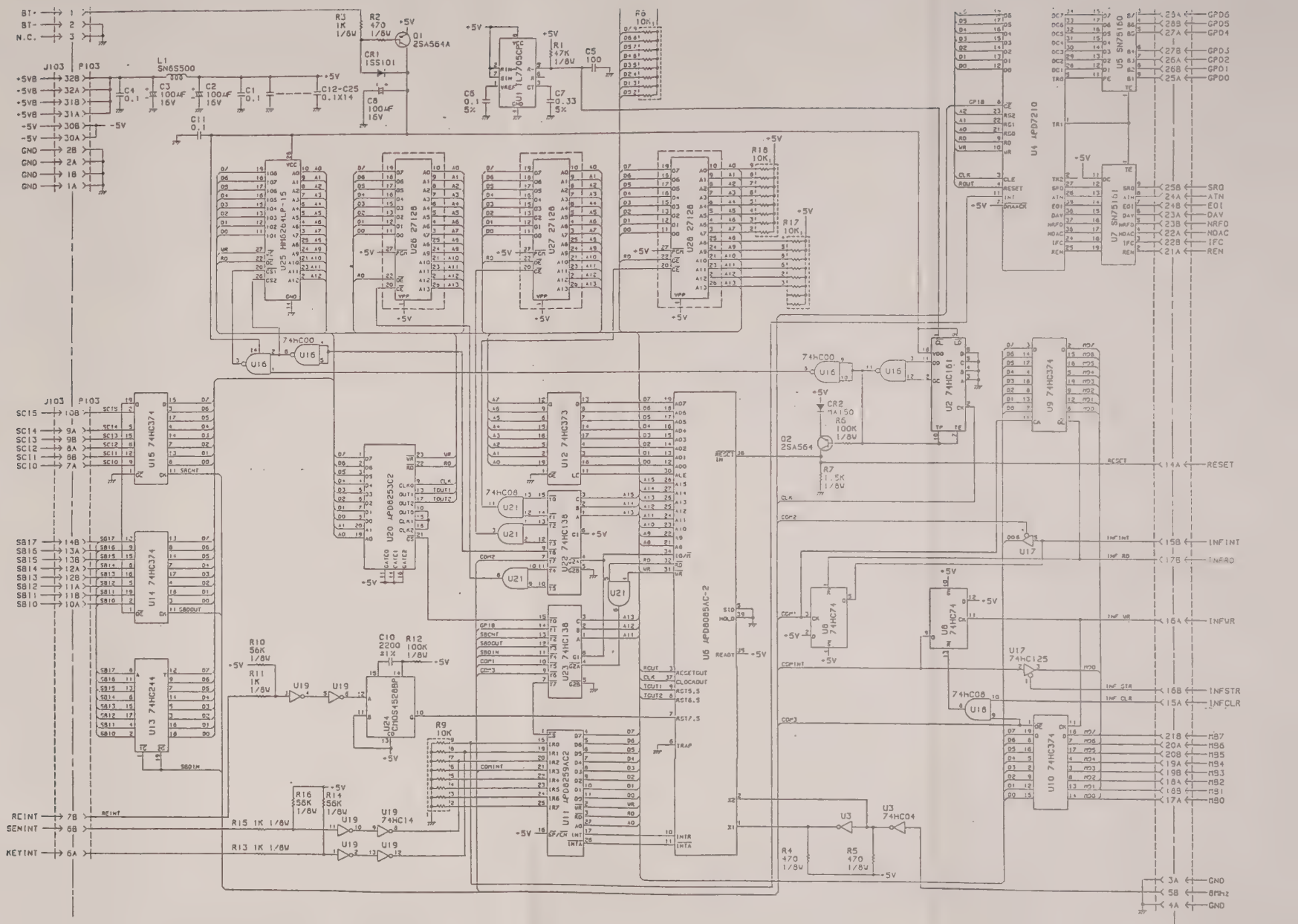

FROM (A7)-1
P3
P4
P2
P1
P24
J24 (L) or J25 (R)
A GND
I/P DC
MD (L) (R)
CNT
(L) (R)
NORM (L) (R)
I/P DC ADJ
I/P DC OST ADJ
NJM0828M
NJM5532M
U37 TD 62387P
U36 74HC374
TL084CP
TL191CN
μPC157C
MA150
A+15V
A-15V
A+5V
CLK1 (CLK2)
FLT

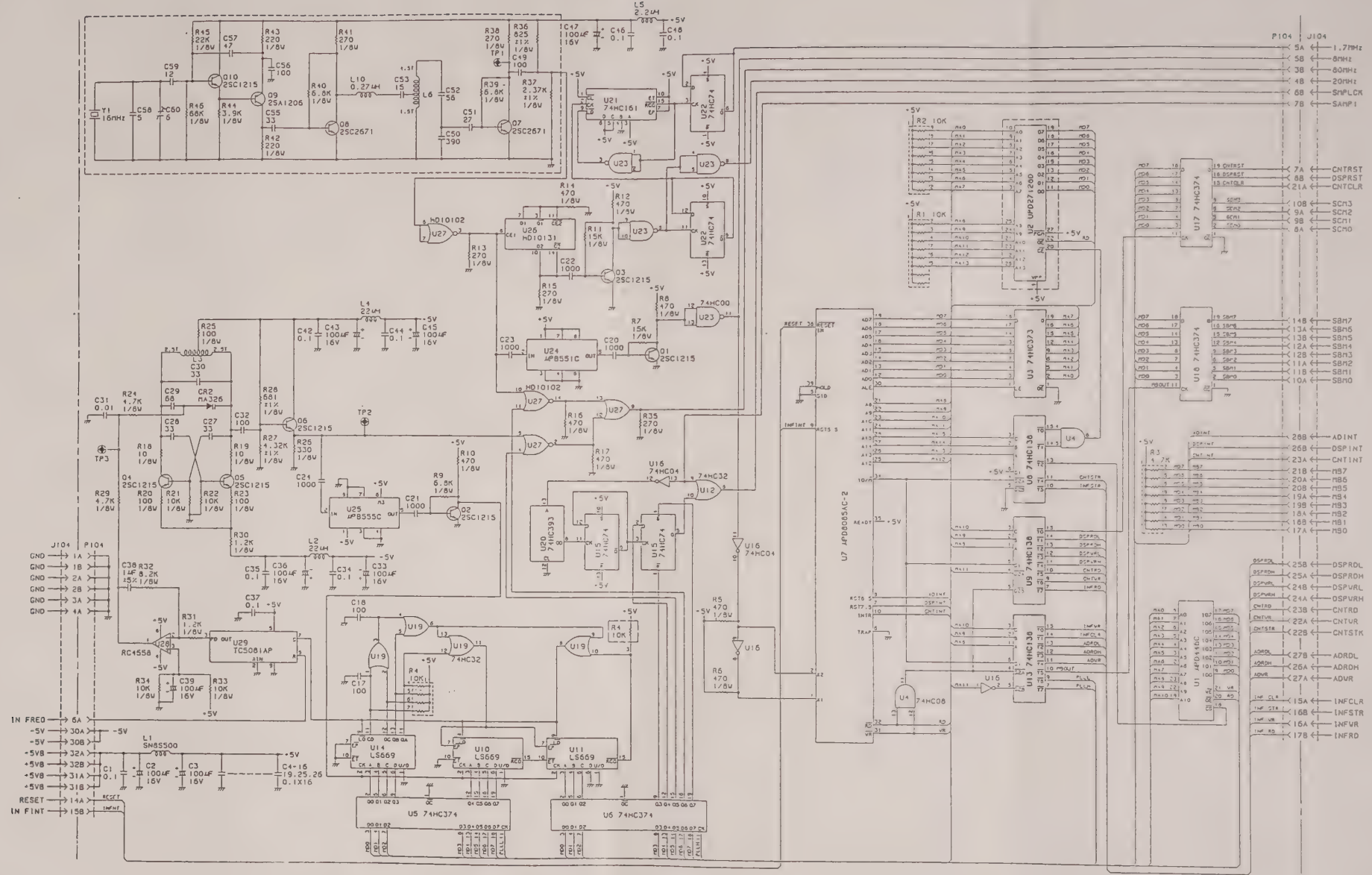

+15V
R13 560 1/8W
R14 660 1/8W
R15 10K 1/8W
R18 2.2K 1/8W
R19 470 1/8W
Q14 2SA564A
Q15 2SA564A
R16 51 1/8W
Q17 2N3905
Q16 2N3905
Q22 2SC828A
Q23 2SC828A
R12 330 1/8W
C11 100
R17 330 1/8W
C13 10
Q13 2SC1215
Q12 2SC1215
CR12 MA150
R27 10
R29 10 1/8W
(OUT)
VR11 RD6.2EB2
C12 0.01
Q11 μPA71A
(+)
(-)
R11 20
R26 22 1/8W
CR13 MA150
R25 10
Q19 2SA564A
Q24 2SA564A
Q18 2SC828A
Q20 2SC828A
Q21 2SC828A
R21 2K 1/8W
R22 100 1/8W
R23 10K 1/8W
R20 1K 1/8W
R24 1K 1/8W
R25 470 1/8W
CR11 MA150
C14 10μF 35V
-15V
OST ADJ

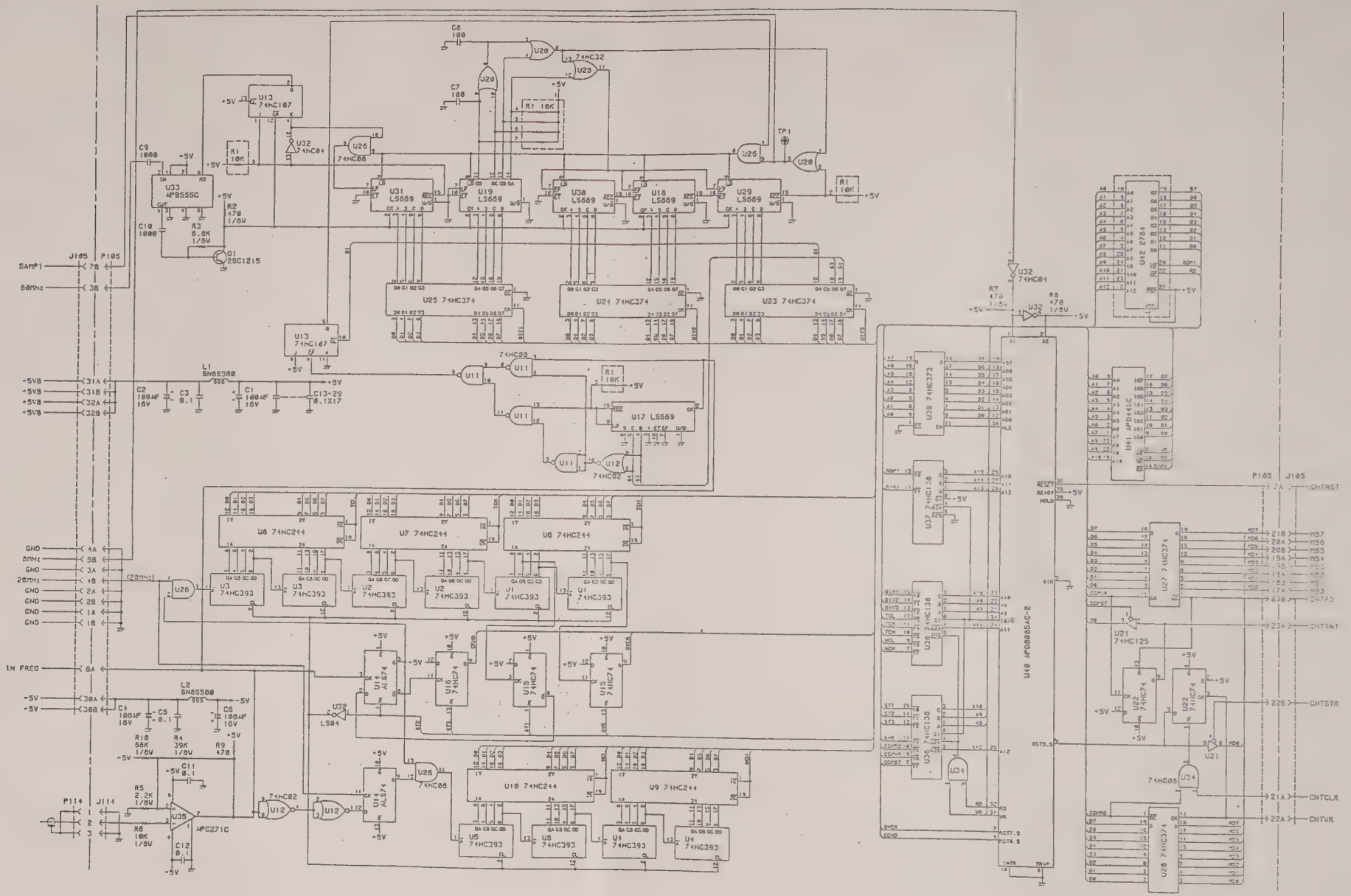


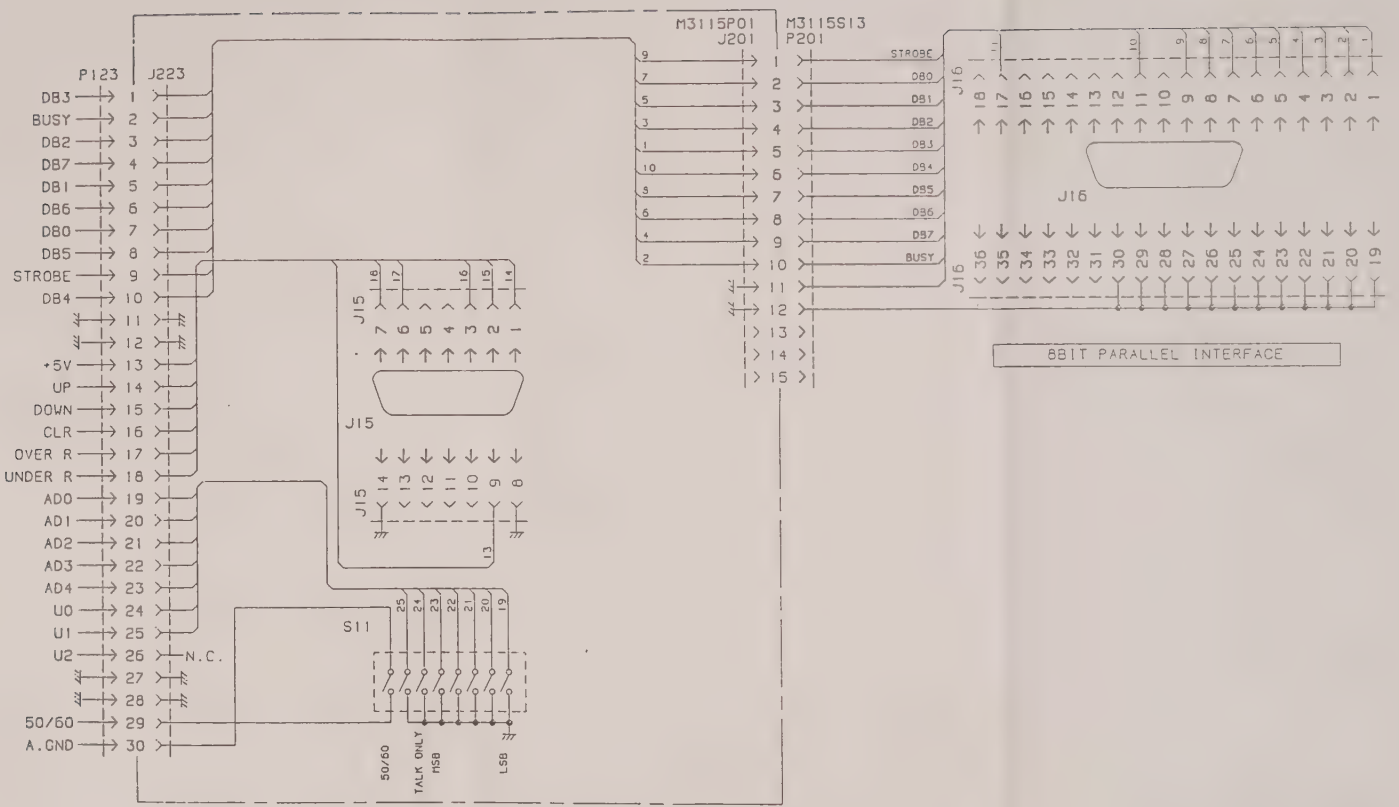
A/D CONVERTER ASSY A11

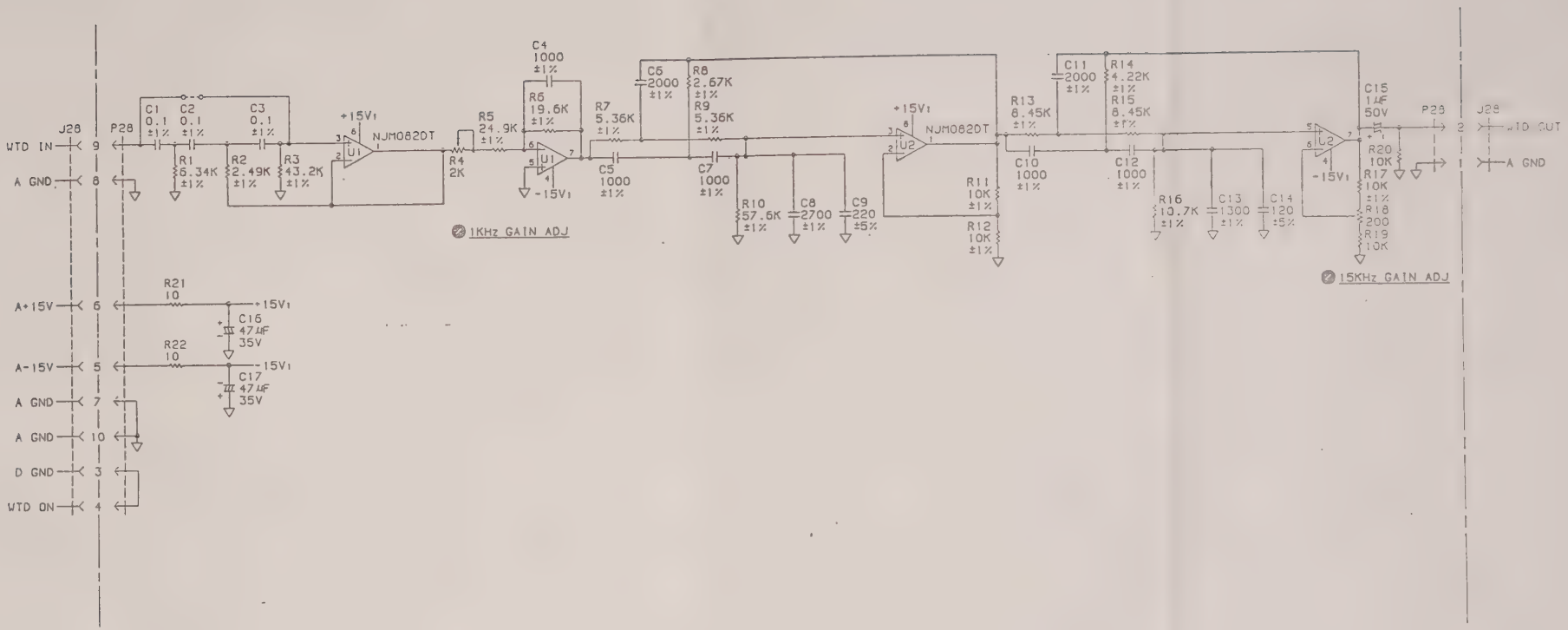


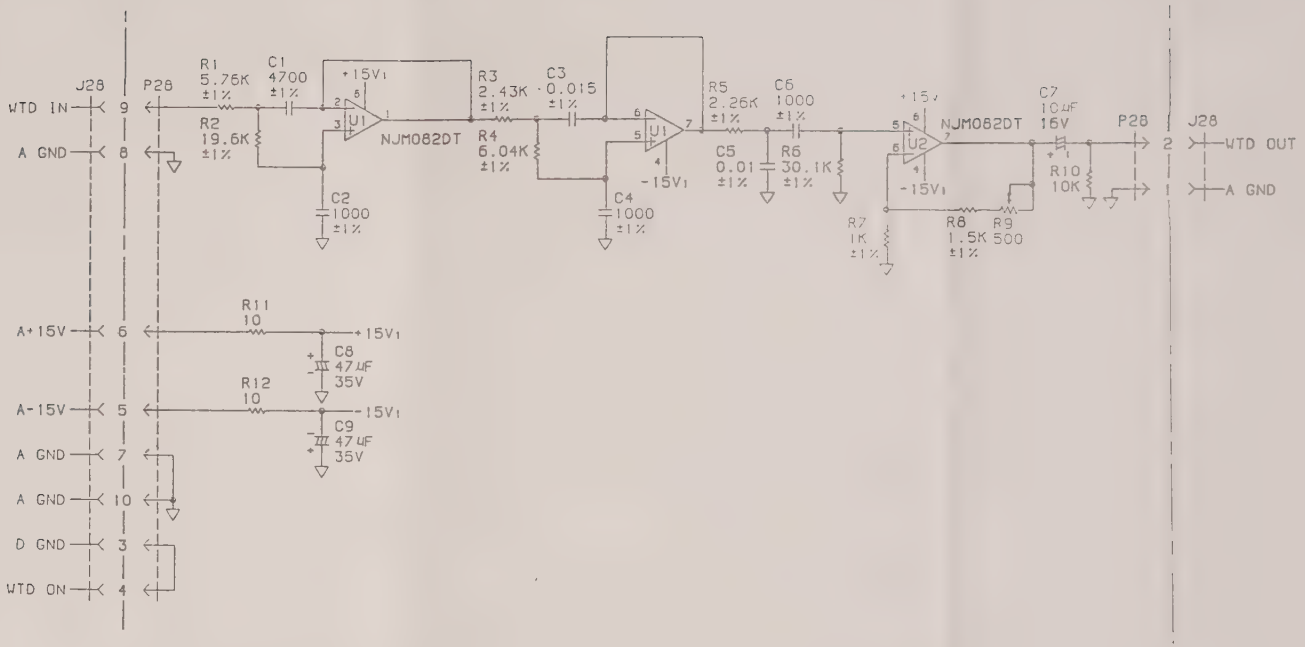


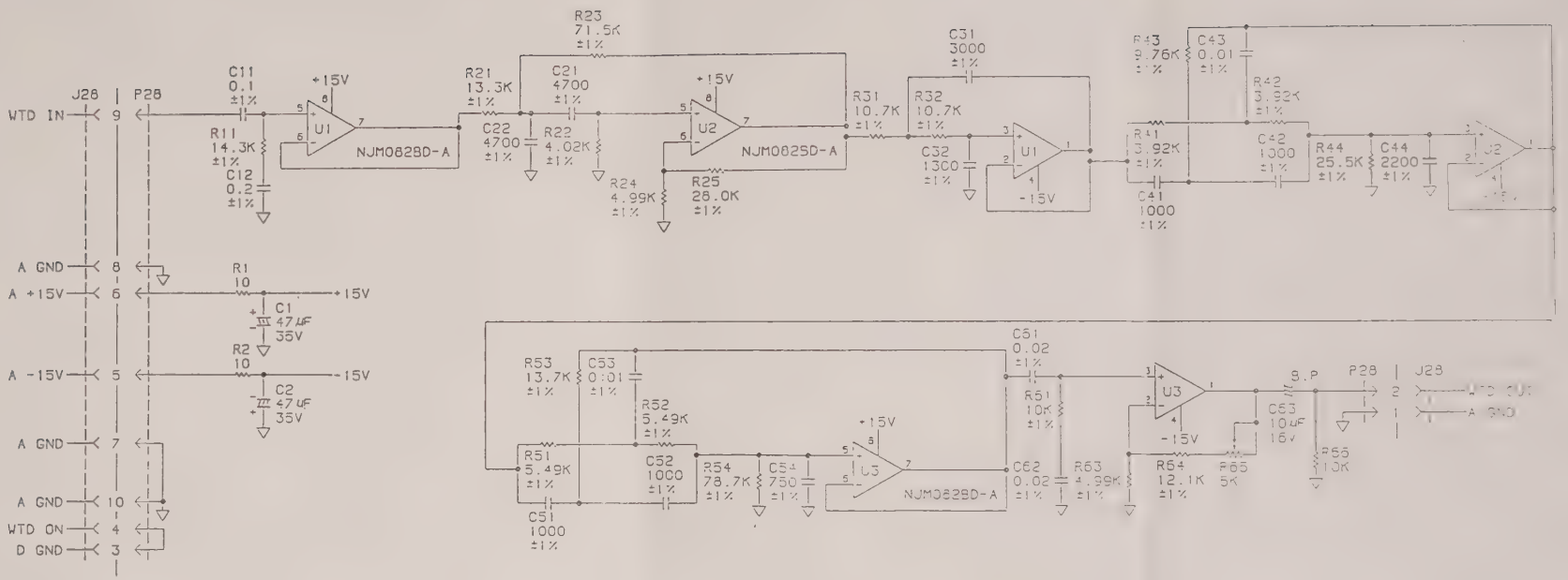


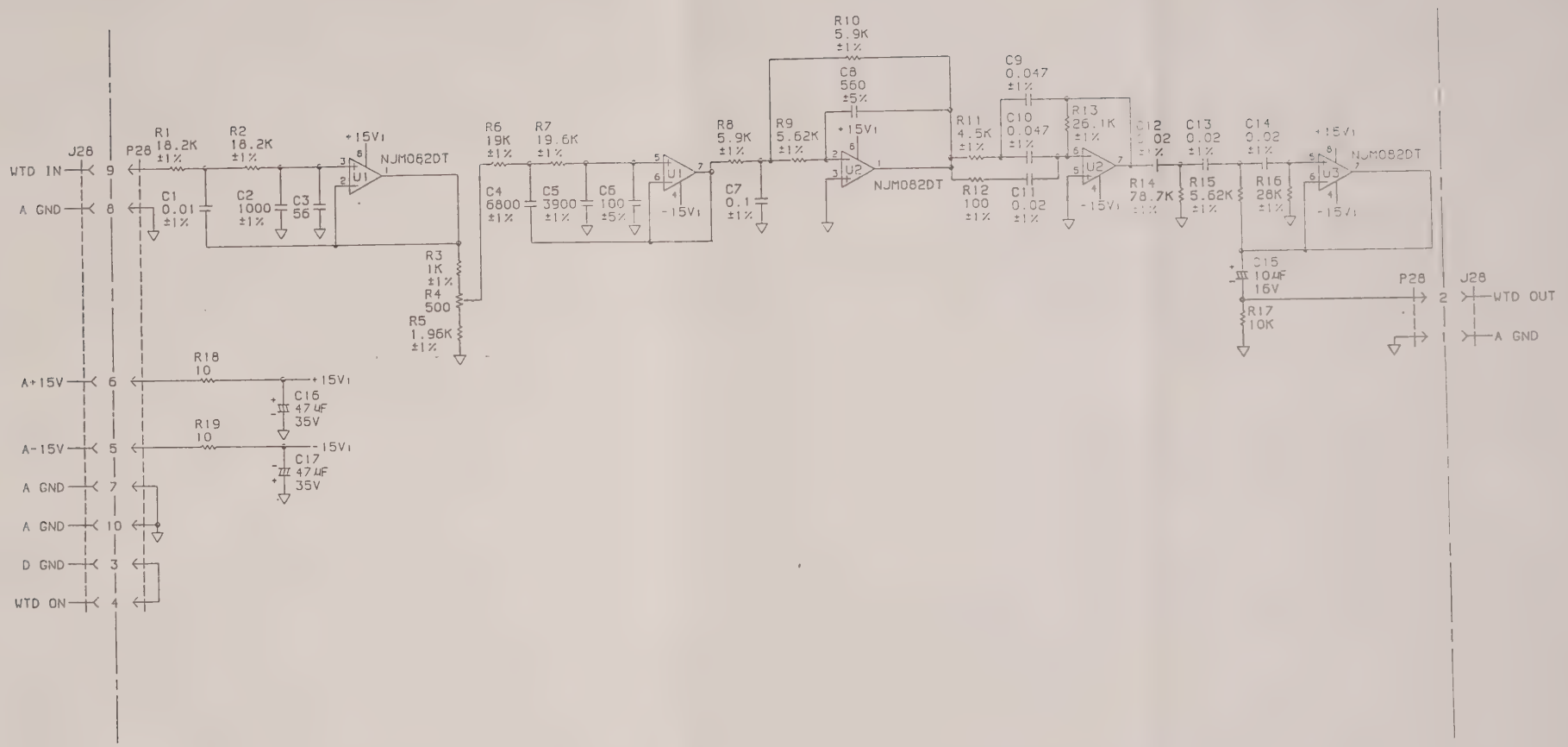

J105 P105
SAMP1
80MHz
-5V8
+5V8
GND
20MHz
IN FREQ
P114 J114
74HC00
74HC02
74HC32
74HC04
74HC08
74HC86
74HC05
74HC244
74HC393
74HC374
74HC373
74HC139
74HC125
74HC74
LS669
LS669
LS04
AD574
MPC271C
SN65500
2SC1215
AP8555C
AP0808AC-2
2764
CNTRST
CNTPO
CNTINT
CNTSTR
CNTCLR
CNTVR
COUNTER ASSY A15

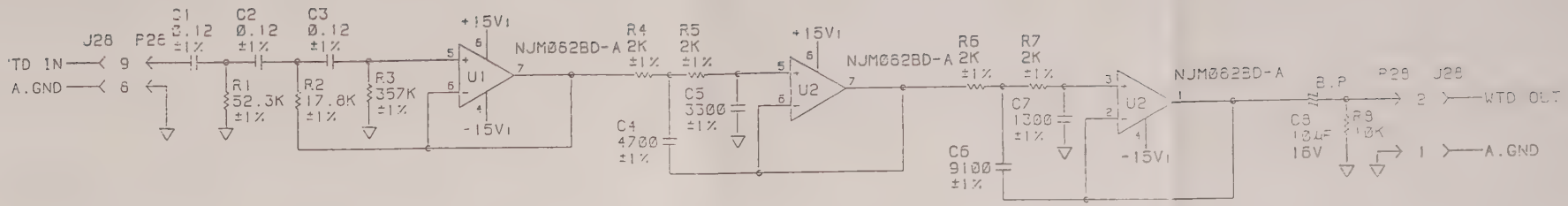

M3115P01
J201
M3115S13
P201
P123
J223
DB3
BUSY
DB2
DB7
DB1
DB6
DB0
DB5
STROBE
DB4
+5V
UP
DOWN
CLR
OVER R
UNDER R
AD0
AD1
AD2
AD3
AD4
U0
U1
U2
N.C.
50/60
A.GND
J15
J16
S11
50/60
TALK ONLY
MSB
LSB
8BIT PARALLEL INTERFACE

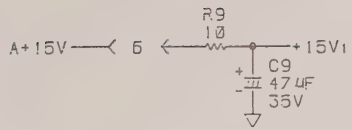

J28
P28
WTD IN 9
A GND 8
A+15V 6
A-15V 5
A GND 7
A GND 10
D GND 3
WTD ON 4
C1 0.1 ±1%
C2 0.1 ±1%
C3 0.1 ±1%
R1 6.34K ±1%
R2 2.49K ±1%
R3 43.2K ±1%
+15V1
U1
NJM0820T
R4 2K
R5 24.9K ±1%
C4 1000 ±1%
R6 19.6K ±1%
-15V1
1KHz GAIN ADJ
R7 5.36K ±1%
C5 2000 ±1%
R8 2.67K ±1%
R9 5.36K ±1%
C5 1000 ±1%
C7 1000 ±1%
R10 57.6K ±1%
C8 2700 ±1%
C9 220 ±5%
U2
R11 10K ±1%
R12 10K ±1%
R13 6.45K ±1%
C10 1000 ±1%
C11 2000 ±1%
R14 4.22K ±1%
R15 6.45K ±1%
C12 1000 ±1%
R16 10.7K ±1%
C13 1300 ±1%
C14 120 ±5%
C15 1µF 50V
R17 10K ±1%
R18 200
R19 10K
R20 10K
15KHz GAIN ADJ
P29
J29
WTD OUT
A GND
R21 10
R22 10
C16 47µF 35V
C17 47µF 35V

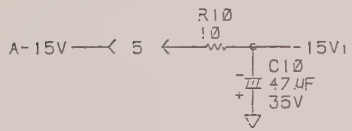

J28
P28
WTD IN
A GND
A+15V
A-15V
A GND
A GND
D GND
WTD ON
R1 5.76K ±1%
C1 4700 ±1%
R2 19.6K ±1%
C2 1000 ±1%
+15V1
U1
NJM082DT
R3 2.43K ±1%
R4 6.04K ±1%
C3 0.015 ±1%
C4 1000 ±1%
-15V1
U1
R5 2.26K ±1%
C5 0.01 ±1%
C6 1000 ±1%
R6 30.1K ±1%
R7 1K ±1%
+15V
U2
NJM082DT
-15V1
R8 1.5K ±1%
R9 500
C7 10uF 16V
R10 10K
P28
J28
WTD OUT
A GND
R11 10
C8 47uF 35V
+15V1
R12 10
C9 47uF 35V
-15V1


J28
P28
WTD IN
9
A GND
8
A +15V
6
A -15V
5
A GND
7
A GND
10
WTD ON
4
D GND
3
C11
0.1
±1%
R11
14.3K
±1%
C12
0.2
±1%
+15V
U1
NJM0828D-A
R21
13.3K
±1%
C22
4700
±1%
R23
71.5K
±1%
C21
4700
±1%
R22
4.02K
±1%
R24
4.99K
±1%
R25
28.0K
±1%
U2
NJM0825D-A
R31
10.7K
±1%
C31
3000
±1%
R32
10.7K
±1%
C32
1300
±1%
-15V
R43
9.76K
±1%
C43
0.01
±1%
R42
3.92K
±1%
R41
3.92K
±1%
C42
1000
±1%
C41
1000
±1%
R44
25.5K
±1%
C44
2200
±1%
R1
10
C1
47 uF
35V
R2
10
C2
47 uF
35V
C51
0.02
±1%
R53
13.7K
±1%
C53
0.01
±1%
R52
5.49K
±1%
R51
5.49K
±1%
C52
1000
±1%
C51
1000
±1%
R54
78.7K
±1%
C54
750
±1%
U3
NJM0828D-A
R51
10K
±1%
C62
0.02
±1%
R63
4.99K
±1%
R54
12.1K
±1%
R65
5K
C63
10 uF
16V
R55
10K
S.P
P28
J28
WTD OUT
A GND

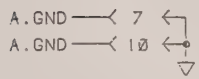

J28
WTD IN 9
A GND 8
A+15V 6
A-15V 5
A GND 7
A GND 10
D GND 3
WTD ON 4
P28
R1 18.2K ±1%
R2 18.2K ±1%
C1 0.01 ±1%
C2 1000 ±1%
C3 56
+15V1
U1
NJM082DT
R3 1K ±1%
R4 500
R5 1.96K ±1%
R6 19K ±1%
R7 19.6K ±1%
C4 6800 ±1%
C5 3900 ±1%
C6 100 ±5%
-15V1
R8 5.9K ±1%
C7 0.1 ±1%
R9 5.62K ±1%
R10 5.9K ±1%
C8 560 ±5%
U2
R11 4.5K ±1%
R12 100 ±1%
C9 0.047 ±1%
C10 0.047 ±1%
C11 0.02 ±1%
R13 26.1K ±1%
R14 78.7K ±1%
C12 0.02 ±1%
C13 0.02 ±1%
R15 5.62K ±1%
C14 0.02 ±1%
R16 28K ±1%
U3
C15 10uF 16V
R17 10K
R18 10
C16 47uF 35V
R19 10
C17 47uF 35V
J28
WTD OUT
A GND

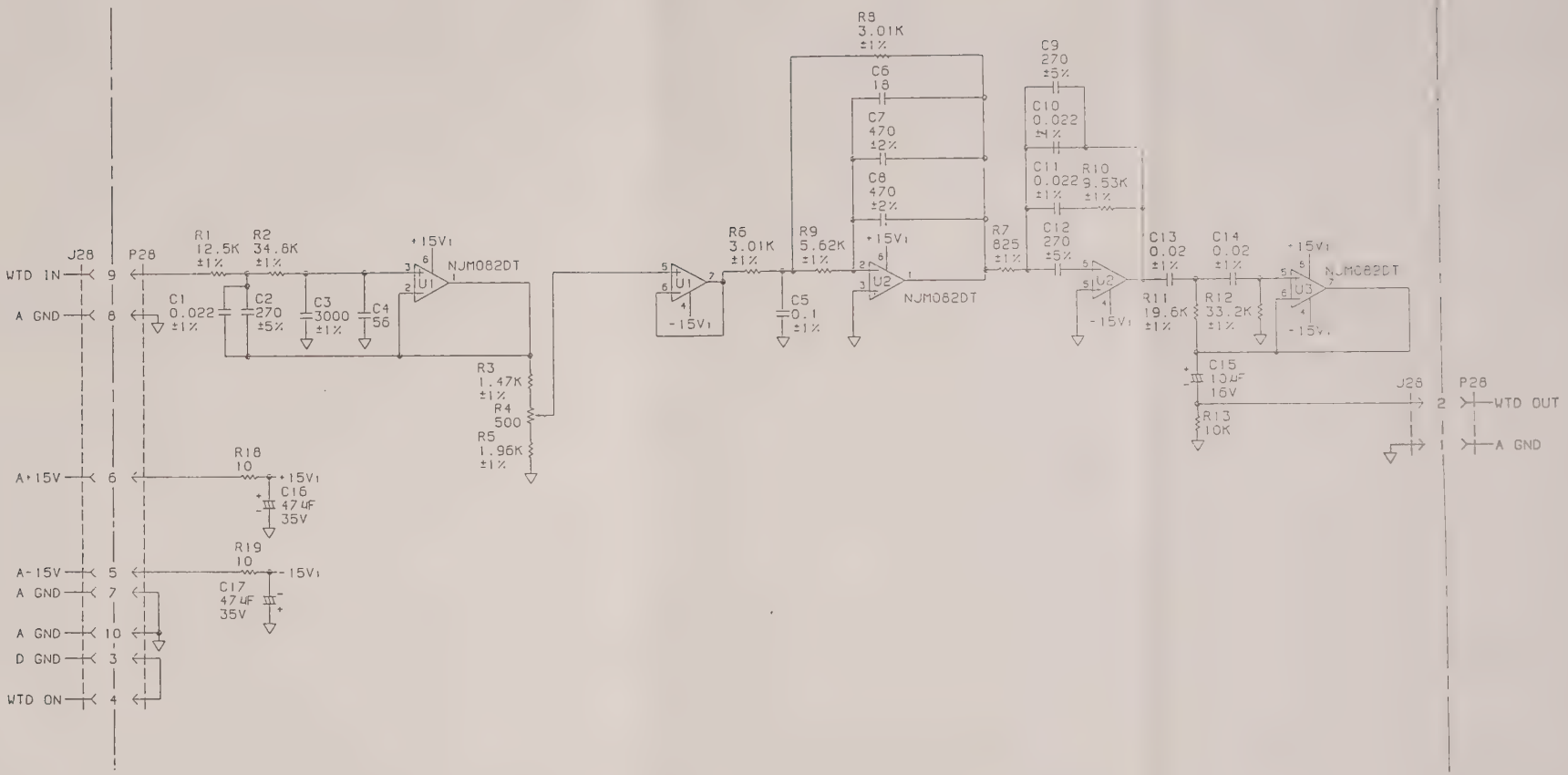

C1
3.12
±1%
C2
0.12
±1%
C3
0.12
±1%
J28
P28
TD IN
9
A.GND
6
R1
52.3K
±1%
R2
17.8K
±1%
R3
357K
±1%
+15V
U1
NJM0628D-A
-15V
R4
2K
±1%
R5
2K
±1%
C4
4700
±1%
C5
3300
±1%
U2
R6
2K
±1%
R7
2K
±1%
C7
1300
±1%
C6
9100
±1%
B.P
P29
J28
2
WTD OUT
C8
10uF
16V
R8
10K
1
A.GND

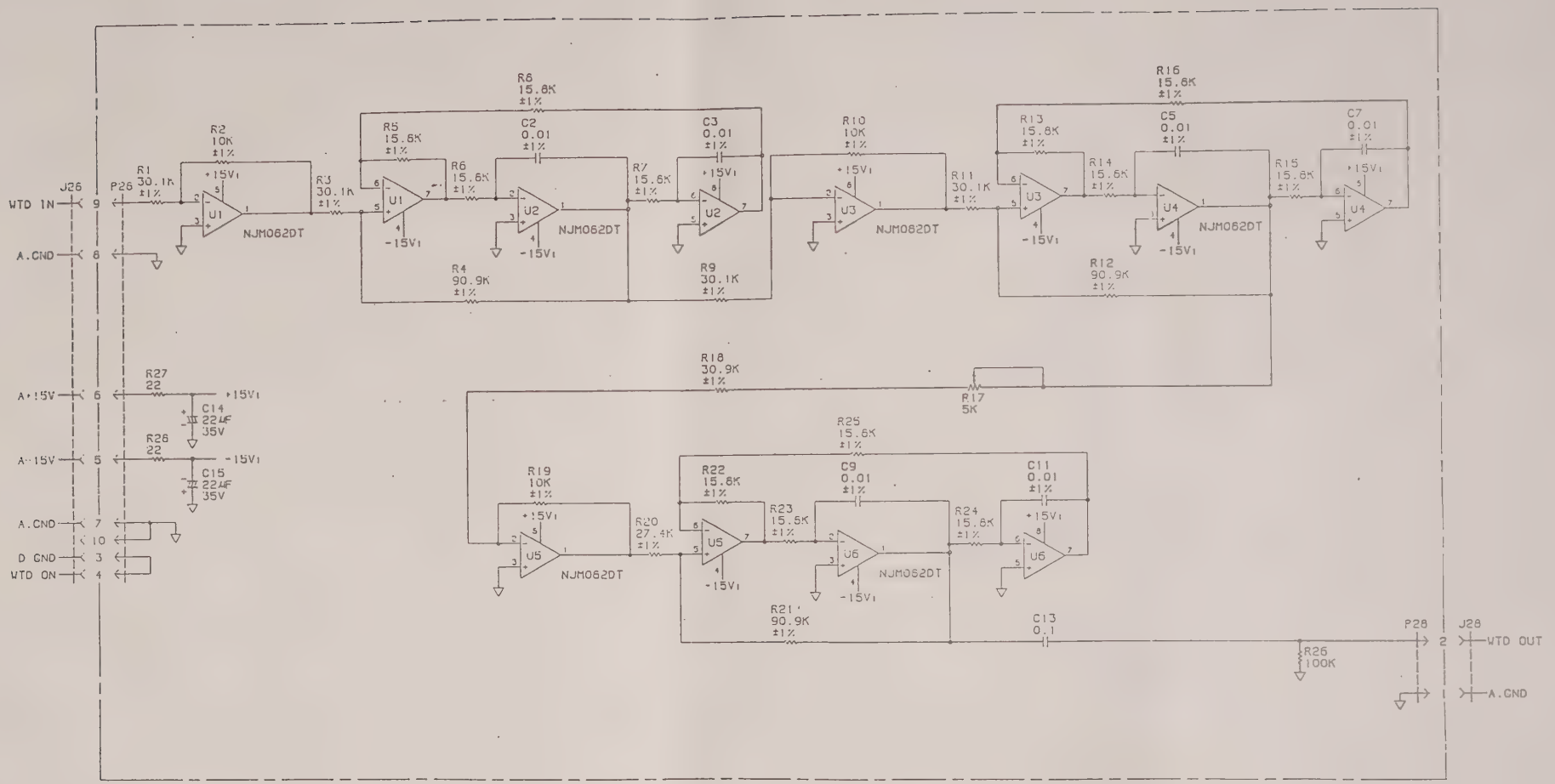

R9
10
A+15V
6
+15V
C9
47uF
35V


R10
10
A-15V
5
-15V
C10
47uF
35V

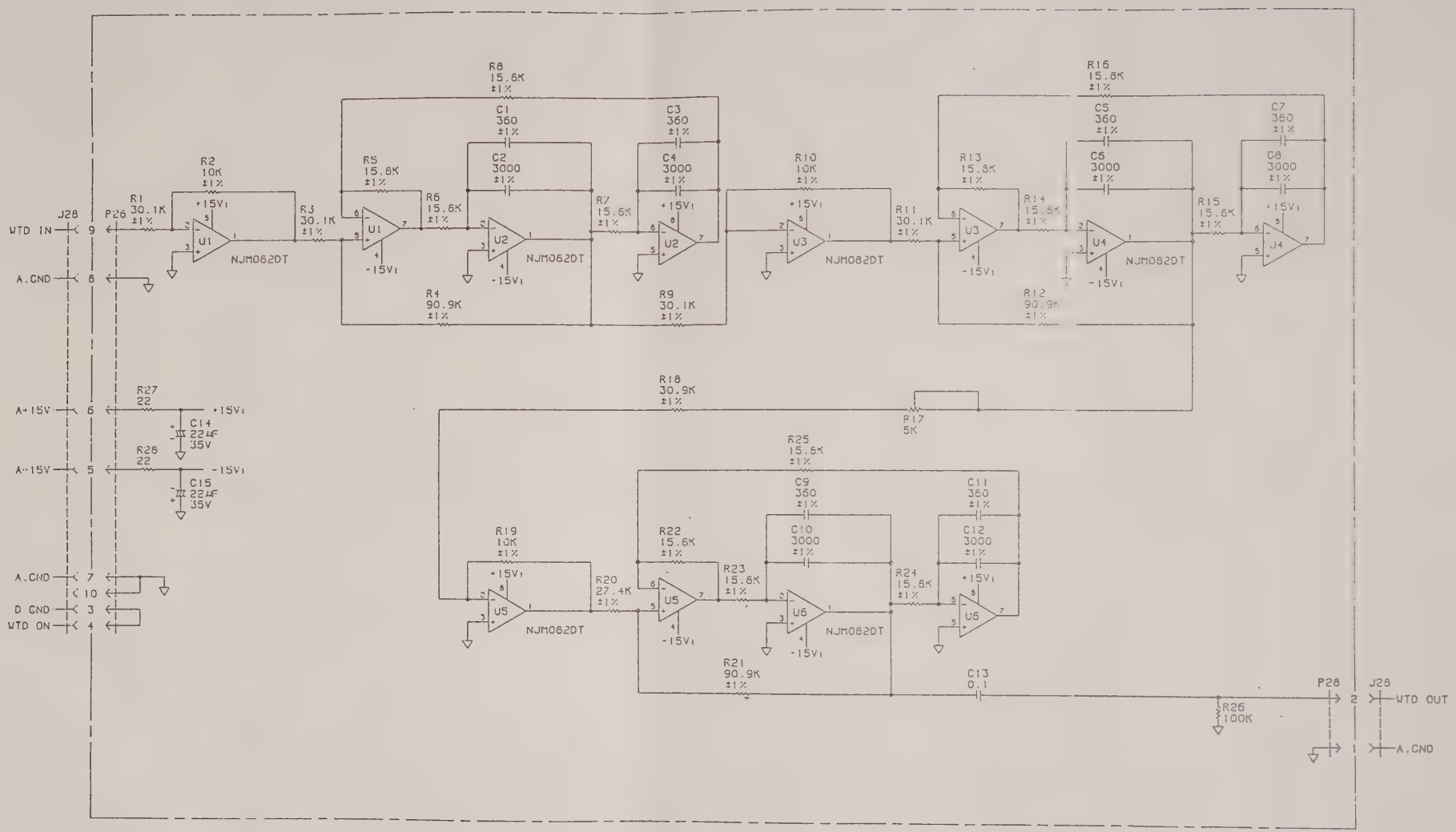
TD ON
4
D.GND
3


A.GND
7
A.GND
10

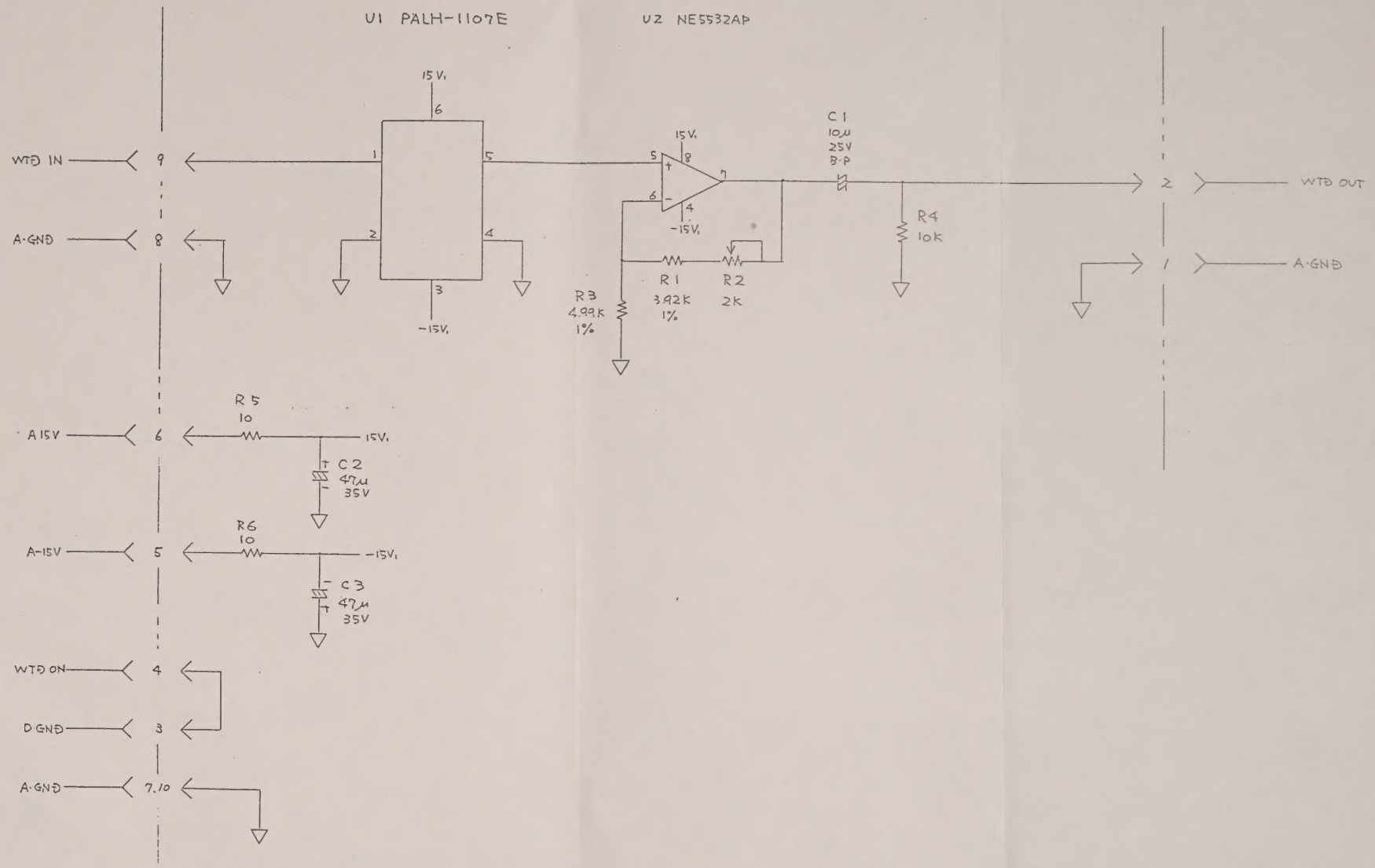

J28
P28
WTD IN 9
A GND 8
A+15V 6
A-15V 5
A GND 7
A GND 10
D GND 3
WTD ON 4
R1 12.5K ±1%
R2 34.8K ±1%
C1 0.022 ±1%
C2 270 ±5%
C3 3000 ±1%
C4 56
+15V1
NJM082DT
U1
R3 1.47K ±1%
R4 500
R5 1.96K ±1%
R18 10
C16 47uF 35V
R19 10
C17 47uF 35V
-15V1
R6 3.01K ±1%
C5 0.1 ±1%
R8 3.01K ±1%
C6 18
C7 470 ±2%
C8 470 ±2%
R9 5.62K ±1%
U2
R7 825 ±1%
C9 270 ±5%
C10 0.022 ±1%
C11 0.022 ±1%
R10 9.53K ±1%
C12 270 ±5%
C13 0.02 ±1%
C14 0.02 ±1%
R11 19.6K ±1%
R12 33.2K ±1%
U3
C15 10uF 16V
R13 10K
J28
P28
2 WTD OUT
1 A GND



1 KHZ BAND PASS FILTER OPT8



3 KHZ BAND PASS FILTER OPT9



20 KHZ LOW PASS FILTER OPT6

MP MASTER
MA33605